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INVESTMENT NEEDS AND SELF-FINANCING CAPABILITIES: U.S. AIRPORTS--ETC(U)
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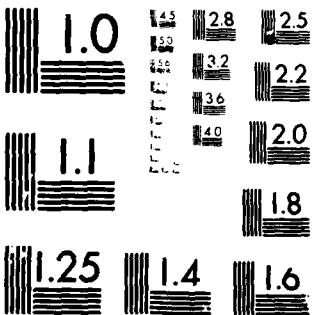
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INVESTMENT NEEDS
AND SELF-FINANCING CAPABILITIES:
U.S. AIRPORTS FISCAL YEARS 1981-1990

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JULY 1978

FINAL REPORT

Prepared for

U.S. DEPARTMENT OF TRANSPORTATION
Federal Aviation Administration
Office of Aviation System Plans
Washington, D.C. 20591

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Technical Report Documentation Page

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|--|--|--|-----------|
| 1. Report No. WI 78-3421-1 | 2. Government Accession No. | 3. Recipient's Catalog No. | |
| 4. Title and Subtitle <u>Investment needs and self-financing capabilities: U.S. Airports FY 1981-1990.</u> <u>Fiscal Years</u> | | 5. Report Date <u>11 July 78</u> | |
| 6. Author(s) | | 4. Performing Organization Code | |
| 7. Performing Organization Name and Address J.R. Crenshaw and Associates, Inc. ✓ Suite 219 - 5600 Columbia Pike Falls Church, Va. 22041 | | 8. Performing Organization Report No. <u>12) 67</u> | |
| 9. Sponsoring Agency Name and Address U.S. Department of Transportation Federal Aviation Administration Office of Aviation System Plans Washington, D.C. 20591 | | 10. Work Unit No. (TRAIL) <u>WI 78-3421-1 ?</u> | |
| 11. Type of Report and Period Covered | | 12. Sponsoring Agency Code | |
| 13. Supplementary Notes <u>10) Joel R. Crenshaw Edmund J. Dickinson</u> | | | |
| 14. Abstract <p>This report addresses the estimated investment needs of U.S. airports and presents an evaluation of their capability of self-finance that investment during the time period FY 1981-1990. The report is intended for use as background material in evaluating policy alternatives for renewal of the Airport Development Aid Program (ADAP). A</p> <p><u>15) WI-78-3421-1</u></p> <p><u>9) Final reptis</u></p> | | | |
| 17. Key Words | 18. Distribution Statement Availability is unlimited. Document is available to the U. S. public through the National Technical Information Service, Springfield, Va. 22161. | | |
| 19. Security Classif. (of this report) UNCLASSIFIED | 20. Security Classif. (of this page) UNCLASSIFIED | 21. No. of Pages 61 | 22. Price |

411 683

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I. INTRODUCTION

// This report addresses the estimated investment needs of U.S. airports and presents an evaluation of their capability to self-finance that investment during the time period FY 1981-1990. The report is intended for use as background material in evaluating policy alternatives for renewal of the Airport Development Aid Program (ADAP). //

The analysis undertaken in the report is similar to the analysis performed by the U.S. Senate Commerce Committee in 1968 as part of its consideration of legislation which became the ADAP in 1969. The Commerce Committee analysis appeared in Senate Report No. 1355; 90th Congress, 2nd Session (July 1, 1968).

This report provides a basis for estimating the total magnitude of airport investment needs and for estimating these needs for airport groupings according to size (level of activity). This report also provides a basis for evaluating the capability of airports of various sizes to generate net income to support funding of capital investment. The data and analyses in this report should not be construed as precise measures of the investment needs and net income generating capability of any particular airport.

The evaluation of the net income generating capability of airports in this report is based primarily on data supplied by the Federal Aviation Administration as contained in:

"Terminal Area Financial Data Study"; Data Base, Volumes I and II; prepared under Contract No. DUT-FA76WA-3883 by Aerospace Systems, Inc; January 1978.

The financial data in the base are in the form of income and expense statements and sources and uses of funds statements for the latest fiscal year available at the time of survey; in most cases data for 1976 were provided. The data base is grouped as follows:

- o Large Hub Airport
- o Medium Hub Airports
- o Small Hub Airports
- o Non Hub Airports
- o Large General Aviation Airports
- o Medium General Aviation Airports
- o Small General Aviation Airports

The data base used to estimate capital development requirements for airports during the period 1981-1990 is as contained in the Federal Aviation Administration's "National Airport System Plan 1978-87" published on December 20, 1977. To provide estimates for airport capital development for facilities not covered in the NASP and for the period 1988-1990, the contractor designed estimating equations which were then checked for general accuracy against individual airport capital budget programs and against empirical data for the period 1970-77.

This report groups airports as follows:

- o Air Carrier
 - Over 4 million total annual passengers
 - One to 4 million total annual passengers
 - 300,000 to 1 million total annual passengers
 - Less than 300,000 total annual passengers
- o General Aviation
 - Large (over 200 based aircraft)
 - Medium (25-200 based aircraft)
 - Small (less than 25 based aircraft)

These groups were chosen so that the analysis in this report might at some later date be conveniently compared to the Senate Commerce Committee analysis previously referenced and to an analysis prepared in 1973 by the Aerospace Corporation: "Financial & Statistical Data & Estimating Relationships for Airport Planning." The Senate analysis grouped airports by hub size while the latter report grouped them by passenger enplanement or aircraft operations levels identical to or very close to those used in this report.

A note on methodology is germane at this point. First, in the simplest of terms, to have any self financing capability at all a facility must earn net operating revenue (operating revenues must exceed operating expenses). This net operating revenue plus any non-operating revenue (usually from interest on investments and from local taxes or local government contributions) must be sufficient to cover non-operating expenses (the bulk of which are interest expenses) and leave a residual for amortization of principal on existing debt. Any amount then remaining is available for servicing new debt (interest plus amortization).

This report attempts to estimate these financial results for a large segment of the airport industry. Working with a data base which is but a sample of the entire industry and which is bound to have understandable errors, any conclusions which are drawn must be very general and very tentative even though such conclusions may be drawn to aid in the formulation of general policy directions.

The remainder of the report is divided into the following main sections:

- o Evaluation of Data Base
- o Evaluation of Airport Financial Results
- o Estimation of Airport Investment Needs
- o Analysis of Self-Financing Capability

II. EVALUATION OF DATA BASE

The data base referenced on page 1 was developed by use of the direct survey method and use of a common data format for each airport. Airports have been surveyed in this manner many times before and for many years airport members of the Airport Operators Council International have provided that organization with annual financial data in a similar format.

The financial results of primary interest for this report are the operating profit figure shown as item C and the operating income figure shown as item F on the Income & Expense Statement form which was sent to each airport. A copy of this form is included in the Appendix. The operating revenue and operating expense items used to derive the operating profit (which is called net operating revenue in this report) were complete with one exception: it was not clear whether local municipal services often provided to some airports had been shown as expense items. Accounting practices vary. Services provided are sometimes not shown in an airport's financial statement and are sometimes shown as a non-operating expense item. While this is not a major defect in the data base it is noted here for information purposes. The operating income figure (called net income in this report) did not always account for first deducting interest expenses. Where this deficiency was detected the figure was not included for subsequent analysis.

The data base for certain airports was not used in subsequent analyses of the relationship between financial performance and traffic activity. It is worthwhile discussing some of the reasons for excluding certain airports. Miami was not considered for subsequent analysis because of the high proportion of its total operating income accounted for by Hangar & Building Area Revenues (about 45%). This income is fixed by lease and does not vary with activity levels. Miami is a base of operations for several airlines and this feature is a primary reason for the large proportion of fixed building revenues. Atlanta was excluded because it has a large element of transfer traffic. Transfer passengers are not intensive users of airport concessions, thus concession revenue (a large component of large air carrier airport total revenues) is not as responsive to changes in traffic volumes. Chicago was excluded because of the nature of the use agreement in effect there with the airlines. While that agreement guarantees the airport sufficient net revenues to pay all expenses and existing debt service, this same feature limits the responsiveness of revenue to traffic levels.

There were a few other exclusions of individual airport data from further analysis based on incomplete or confusing data provided on the survey form. There were probably many undetectable errors in the financial statements provided by the various airports. We use the term errors advisedly for in all cases we suspect that each airport tried to complete the financial statement to the best of its ability and to the extent permitted by its own accounting format. It is also recognized that airports were providing the latest data available and in some cases this may have meant subsequent adjustments would have been made after final audit. In dealing with large volumes of data the analyst must rely somewhat on the notion of compensating "errors": over-estimates will be offset by underestimates.

III. EVALUATION OF AIRPORT FINANCIAL RESULTS

A. General

Using the purged data base, airports were placed into categories based on some direct or indirect measurement of their activity level. Airports classified as Large, Medium, Small and Non Hubs in the data base were placed into categories according to their annual level of total passengers (enplaned plus deplaned, air carrier and commuter carrier) as follows:

- o More than 4 million annual passengers
- o One to 4 million annual passengers
- o 300,000 to 1 million annual passengers
- o Less than 300,000 annual passengers

General aviation airports were placed into categories based on based aircraft as a surrogate variable for activity level as follows:

- o Large (more than 200 based aircraft)
- o Medium (25-200 based aircraft)
- o Small (less than 25 based aircraft)

In this section the analysis was directed at operating and non-operating revenue and expenses. As the report is concerned with the capability of airports to finance future development from their own revenue, the items of interest are:

- o Net operating revenue (operating revenue minus operating expense).
- o Net income (net operating revenue plus non-operating revenues minus non-operating expenses).
- o Amortization (payment of principal on existing debt).

As interest payments on existing debt are a non-operating expense, the amount available for future debt service (interest plus amortization) is the remainder of net income minus amortization.

Time is not a factor in the analysis. All data in the base were for fiscal years 1975 and 1976 often with an overlap. It was assumed for simplification that all data were for the same year. By removing time as a factor and viewing airports grouped by activity level, a picture of airport financial results as a function of activity level is presented.

Regressions were run for each airport category to test the relationship between operating revenues and expenses (and, thus net operating revenue) and passenger volumes of air carrier airports and aircraft operations for general aviation airports. Changes in passenger traffic proved to be significant indicators of changes in operating revenues and expenses (and, thus, net operating revenue) for air carrier airports. Changes in aircraft operations proved to be poor indicators of changes in operating revenues and expenses (and, thus, net operating income) for general aviation airports.

Regressions were also run for net income (net operating revenue plus non-operating revenues less non-operating expenses) and amortization. Changes in passenger traffic proved to be significant indicators of these two variables only in the case of airports with over one million annual passengers. For other airport size groups no traffic measure proved to be a reliable indicator of changes in net income and amortization. Traffic measures were poor indicators in other size groups with correlation coefficients generally in the 0.20 to 0.30 range.

All correlation coefficients were tested for significance at the 0.05 level using the "t-test". Unless otherwise stated the correlation coefficients stated are significant at the 0.05 level and variations in financial results have a linear relationship to changes in activity levels.

B. Regression Analysis: Operating Revenue and Expenses, Net Operating Revenue

1. Airports With Over 4 Million Annual Passengers

Fourteen airports in this category were analyzed as shown in Table 1 (Operating Revenues) and Table 2 (Operating Expenses). Operating revenues ranged from \$6.1 million to \$50.9 million while operating expenses ranged from \$2.9 million to \$23.4 million. Annual passenger levels ranged from 4.4 million to 24.6 million.

Several regression forms were run for both operating revenues and expenses. In both cases the form which produced the best "fit" was $Y = b + mX$. Using this linear form the regression equation for operating revenues is:

$$OP\ REVS = \$116,830 + \$2.024\ (TOT\ PASS)$$

The coefficient of correlation for the linear regression equation with these values is 0.947, R^2 equals 0.897, and t equals 10.21.

The regression equation for operating expenses is:

$$OP\ EXP = \$592,000 + \$0.98\ (TOT\ PASS)$$

The coefficient of correlation for the linear regression equation with these values is 0.875, R^2 equals 0.766 and t equals 6.26.

A net operating revenue regression equation can be derived from the equations for operating revenues and operating expenses; its values are:

$$NET\ OP\ REVENUE = \$476,000 + \$1.044\ (TOT\ PASS)$$

Figure 1 portrays these equations visually. The graph in Figure 1 states the very high probability that all airports in the over 4 million annual passenger group can be expected to earn net operating revenue. (In fact, we know of no U.S. airport in this category which does not earn net operating revenue). The reader is cautioned not to use the estimating equations to derive specific financial results for a particular airport. The equations are descriptive of the financial operating results for a group of airports, not for individual cases.

TABLE 1

OPERATING REVENUES
AIRPORTS WITH MORE THAN 4 MILLION
ANNUAL PASSENGERS

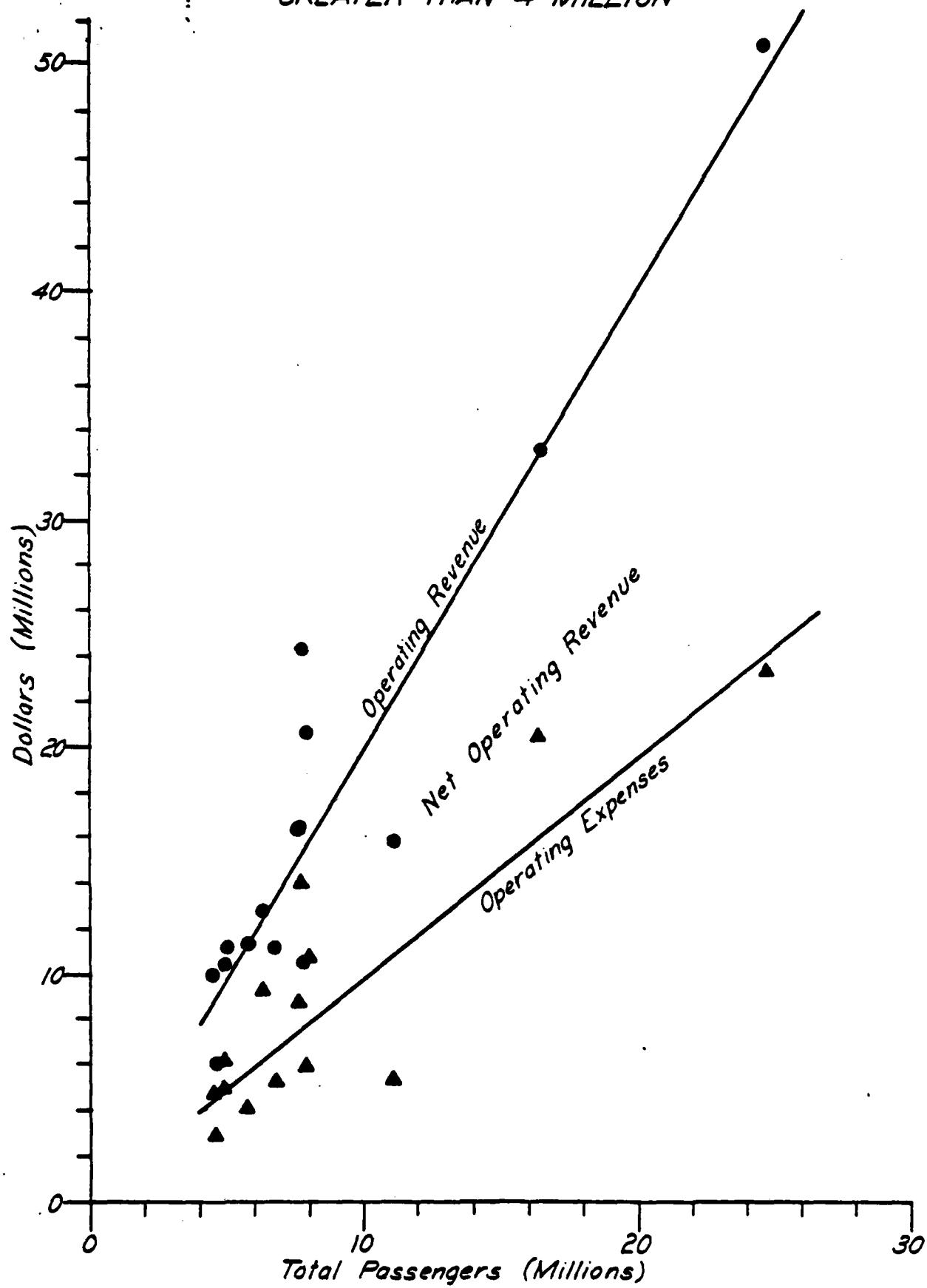
| <u>AIRPORT</u> | <u>OPERATING REVENUES</u> (\$000) | <u>TOTAL PASSENGERS</u> (000) |
|----------------|--------------------------------------|----------------------------------|
| Phoenix | 10,037 | 4,458 |
| Los Angeles | 50,988 | 24,670 |
| San Francisco | 33,199 | 16,332 |
| Denver | 16,036 | 11,050 |
| Tampa | 10,420 | 4,826 |
| New Orleans | 6,180 | 4,570 |
| Detroit | 24,478 | 7,654 |
| Kansas City | 11,358 | 4,948 |
| St. Louis | 10,609 | 7,812 |
| Las Vegas | 11,324 | 6,688 |
| Cleveland | 10,940 | 5,704 |
| Philadelphia | 20,709 | 7,924 |
| Pittsburgh | 16,440 | 7,572 |
| Houston | 12,981 | 6,336 |

TABLE 2

OPERATING EXPENSES
AIRPORTS WITH MORE THAN 4 MILLION
ANNUAL PASSENGERS

| <u>AIRPORT</u> | <u>OPERATING EXPENSES</u> (\$000) | <u>TOTAL PASSENGERS</u> (000) |
|----------------|--------------------------------------|----------------------------------|
| Phoenix | 4,747 | 4,458 |
| Los Angeles | 23,461 | 24,670 |
| San Francisco | 20,583 | 16,332 |
| Denver | 5,412 | 11,050 |
| Tampa | 4,825 | 4,826 |
| New Orleans | 2,930 | 4,570 |
| Detroit | 14,087 | 7,654 |
| Kansas City | 6,179 | 4,948 |
| St. Louis | 6,067 | 7,812 |
| Las Vegas | 5,352 | 6,688 |
| Cleveland | 4,317 | 5,704 |
| Philadelphia | 10,783 | 7,924 |
| Pittsburgh | 8,715 | 7,572 |
| Houston | 9,213 | 6,336 |

FIGURE 1
AIRPORTS WITH TOTAL ANNUAL PASSENGERS
GREATER THAN 4 MILLION



2. Airports With One Million to Four Million Annual Passengers

Thirteen airports in this category were analyzed as shown in Table 3 (Operating Revenues) and Table 4 (Operating Expenses). Operating revenues ranged from \$1.4 million to \$6.5 million. Operating expenses ranged from \$1.1 million to \$6.1 million. Annual passenger levels ranged from 1.0 million to 3.0 million.

Again, several regression forms were run for both operating revenues and expenses. Again, in both cases, the form which produced the best "fit" was $Y = b + mX$. Using this linear form the regression equation for operating revenues is:

$$OP\ REV = \$-1,171,000 + \$2.50 (\text{TOT PASS})$$

The coefficient of correlation for the linear regression equation with these values is 0.907, R^2 equals 0.823 and t equals 7.15.

The regression equation for operating expenses is:

$$OP\ EXP = \$-992,000 + \$1.99 (\text{TOT PASS})$$

The coefficient of correlation for the linear regression equation with these values is 0.76, R^2 equals 0.578 and t equals 3.88.

A net operating revenue regression equation can be derived from the equations for operating revenues and operating expenses; its values are:

$$\text{NET OP REVENUE} = \$-179,000 + \$0.51 (\text{TOT PASS})$$

Figure 2 portrays these equations visually. The graph in Figure 2 states the very high probability that airports in the 1 million to 4 million annual passengers group can be expected to earn net operating revenue. Note, however, that one airport (Reno) in the sample recorded a net operating loss of \$656,000. The reader is cautioned not to use the estimating equations to derive specific results for a particular airport. The equations are descriptive of the financial operating results for a group of airports, not for individual cases.

3. Airports With 300,000 to One Million Annual Passengers

Twelve airports in this category were analyzed as shown in Table 5 (Operating Revenues) and Table 6 (Operating Expenses). Operating revenues ranged from \$392,000 to \$1.9 million while operating expenses ranged from \$261,000 to \$1.3 million. Annual passenger levels ranged from 332,000 to 858,000.

TABLE 3

**OPERATING REVENUES
AIRPORTS WITH 1 to 4 MILLION
ANNUAL PASSENGERS**

| <u>AIRPORT</u> | <u>OPERATING REVENUES</u> (<u>\$000</u>) | <u>TOTAL PASSENGERS</u> (<u>000</u>) |
|----------------------------|---|---|
| Tucson | 2,986 | 1,438 |
| West Palm Beach | 2,892 | 1,512 |
| Indianapolis | 6,301 | 2,592 |
| Louisville | 4,065 | 1,746 |
| Baltimore/Washington Int'l | 6,597 | 3,012 |
| Omaha | 2,661 | 1,616 |
| Albuquerque | 1,890 | 1,620 |
| Reno | 1,435 | 1,090 |
| Albany | 1,602 | 1,122 |
| Rochester | 2,526 | 1,600 |
| Columbus | 4,772 | 2,144 |
| Nashville | 2,975 | 1,778 |
| Salt Lake City | 4,169 | 2,708 |

TABLE 4

**OPERATING EXPENSES
AIRPORTS WITH 1 to 4 MILLION
ANNUAL PASSENGERS**

| <u>AIRPORT</u> | <u>OPERATING EXPENSES</u> (<u>\$000</u>) | <u>TOTAL PASSENGERS</u> (<u>000</u>) |
|----------------------------|---|---|
| Tucson | 2,543 | 1,438 |
| West Palm Beach | 2,226 | 1,512 |
| Indianapolis | 5,690 | 2,592 |
| Louisville | 2,547 | 1,746 |
| Baltimore/Washington Int'l | 6,128 | 3,012 |
| Omaha | 1,271 | 1,616 |
| Albuquerque | 1,152 | 1,620 |
| Reno | 2,091 | 1,090 |
| Albany | 1,384 | 1,122 |
| Rochester | 2,044 | 1,600 |
| Columbus | 3,470 | 2,144 |
| Nashville | 2,153 | 1,778 |
| Salt Lake City | 2,230 | 2,708 |

TABLE 5

**OPERATING REVENUES
AIRPORTS WITH 300,000 to 1 MILLION
ANNUAL PASSENGERS**

| <u>AIRPORT</u> | <u>OPERATING REVENUES</u> (<u>\$000</u>) | <u>TOTAL PASSENGERS</u> (<u>000</u>) |
|-------------------|---|---|
| Fresno | 1,145 | 770 |
| Colorado Springs | 884 | 572 |
| Boise | 1,254 | 858 |
| Jackson | 1,899 | 702 |
| Billings | 1,023 | 580 |
| Toledo | 942 | 582 |
| Charleston (W.VA) | 720 | 510 |
| Sioux Falls | 692 | 496 |
| Baton Rouge | 559 | 376 |
| Portland (Maine) | 529 | 338 |
| Lansing | 682 | 346 |
| Eugene | 392 | 332 |

TABLE 6

**OPERATING EXPENSES
AIRPORTS WITH 300,000 to 1 MILLION
ANNUAL PASSENGERS**

| <u>AIRPORT</u> | <u>OPERATING EXPENSES</u> (<u>\$000</u>) | <u>TOTAL PASSENGERS</u> (<u>000</u>) |
|-------------------|---|---|
| Fresno | 842 | 770 |
| Colorado Springs | 337 | 572 |
| Boise | 1,032 | 858 |
| Jackson | 1,336 | 702 |
| Billings | 927 | 580 |
| Toledo | 918 | 582 |
| Charleston (W.VA) | 448 | 510 |
| Sioux Falls | 455 | 496 |
| Baton Rouge | 533 | 376 |
| Portland (Maine) | 261 | 338 |
| Lansing | 700 | 346 |
| Eugene | 357 | 332 |

TABLE 7

OPERATING REVENUES
AIRPORTS WITH LESS THAN 300,000
ANNUAL PASSENGERS

| <u>AIRPORTS</u> | <u>OPERATING REVENUES</u> (\$000) | <u>TOTAL PASSENGERS</u> (000) |
|-----------------|--------------------------------------|----------------------------------|
| Tuscaloosa | 87 | 72 |
| Chico (Cal.) | 118 | 68 |
| New Haven | 38 | 66 |
| Paducah | 137 | 106 |
| Orleans (Mass.) | 349 | 194 |
| Lebanon | 39 | 80 |
| Kinston | 61 | 102 |
| Bismarck | 594 | 238 |
| Lawton | 127 | 106 |
| Burlington | 489 | 279 |
| Charlottesville | 142 | 112 |
| Yakima | 201 | 124 |

TABLE 8

OPERATING EXPENSES
AIRPORTS WITH LESS THAN 300,000
ANNUAL PASSENGERS

| <u>AIRPORT</u> | <u>OPERATING EXPENSES</u> (\$000) | <u>TOTAL PASSENGERS</u> (000) |
|-----------------|--------------------------------------|----------------------------------|
| Tuscaloosa | 218 | 72 |
| Chico (Cal.) | 119 | 68 |
| New Haven | 176 | 66 |
| Paducah | 135 | 106 |
| Orleans (Mass.) | 359 | 194 |
| Lebanon | 93 | 80 |
| Kinston | 95 | 102 |
| Bismarck | 421 | 238 |
| Lawton | 102 | 106 |
| Burlington | 486 | 279 |
| Charlottesville | 133 | 112 |
| Yakima | 236 | 124 |

Several regression forms were run and the best "fit" was provided by the linear form $Y = b + mX$. Using this form the regression equation for operating revenues is:

$$OP\ REV = \$-116,000 + \$1.875 (\text{TOT PASS})$$

The coefficient of correlation for the linear regression equation with these values is 0.80, R^2 equals 0.64 and t equals 4.21.

The regression equation for operating expenses is:

$$OP\ EXP = \$-47,000 + \$1.348 (\text{TOT PASS})$$

The coefficient of correlation for the linear regression equation with these values is 0.70, R^2 equals 0.49 and t equals 3.09.

A net operating revenue regression equation can be derived from the equations for operating revenues and operating expenses; its values are:

$$\text{NET OP REVENUE} = \$-69,000 + \$0.535 (\text{TOT PASS})$$

Figure 3 portrays these equations visually. The graph in Figure 3 states the probability that airports in the 300,000 to 1 million group will earn net operating revenues especially if their total annual passengers exceed 500,000.

4. Airports with Less Than 300,000 Annual Passengers

Twelve airports in this category were analyzed as shown in Table 7 (Operating Revenues) and Table 8 (Operating Expenses). Operating revenues ranged from \$39,000 to \$594,000 while operating expenses ranged from \$93,000 to \$486,000. Annual passenger levels ranged from 66,000 to 279,000.

The regression form which provided the best "fit" was again $Y = b + mX$. Using this linear form the regression equation for operating revenues is:

$$OP\ REV = \$-100,000 + \$2.37 (\text{TOT PASS})$$

The coefficient of correlation for the linear regression equation with these values is 0.93, R^2 equals 0.865 and t equals 8.00.

The regression equation for operating expenses is:

$$OP\ EXP = \$-13,000 + \$1.76 (\text{TOT PASS})$$

FIGURE 2

AIRPORTS WITH TOTAL ANNUAL PASSENGERS
GREATER THAN 1 MILLION & LESS THAN 4 MILLION

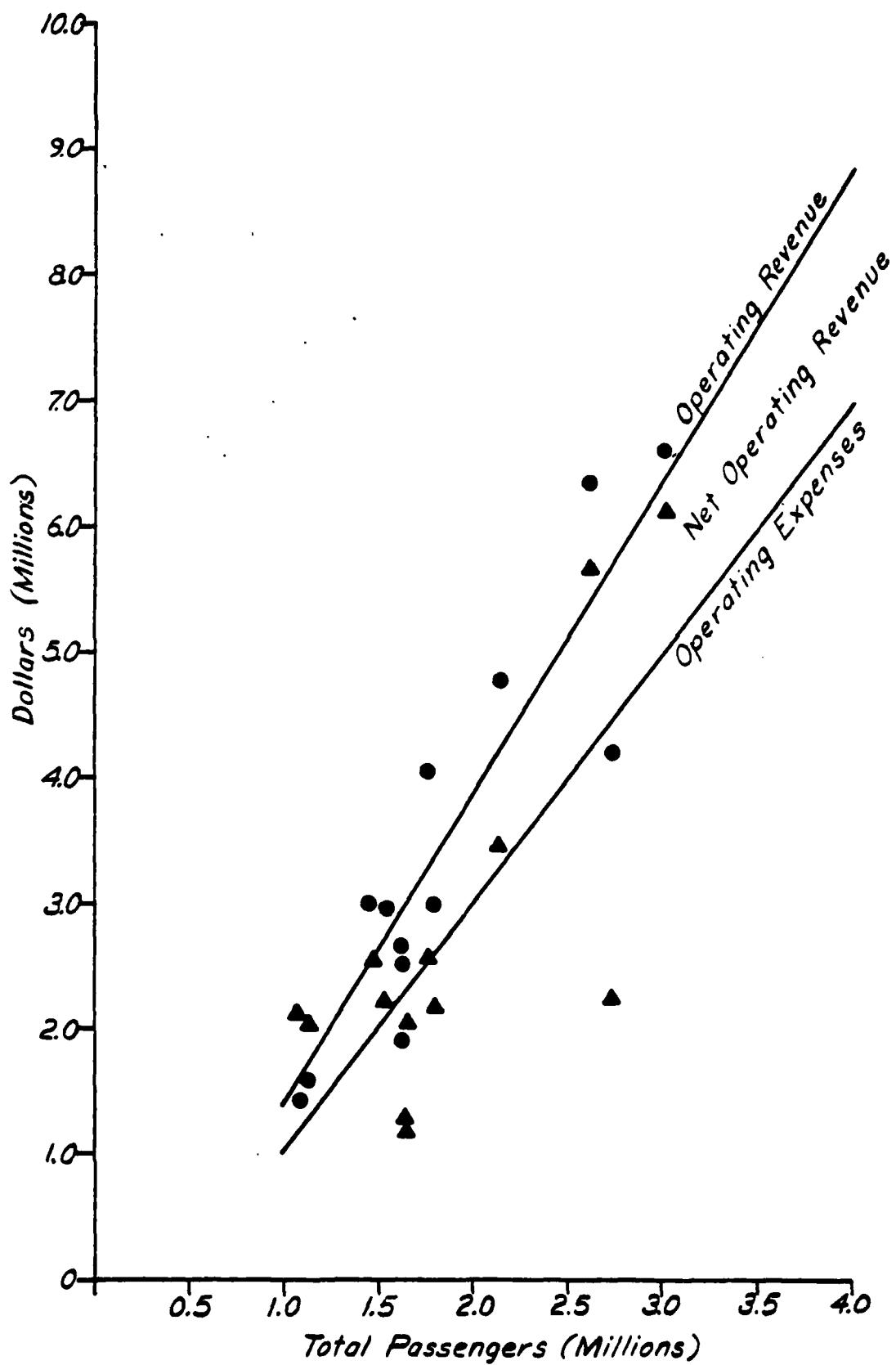
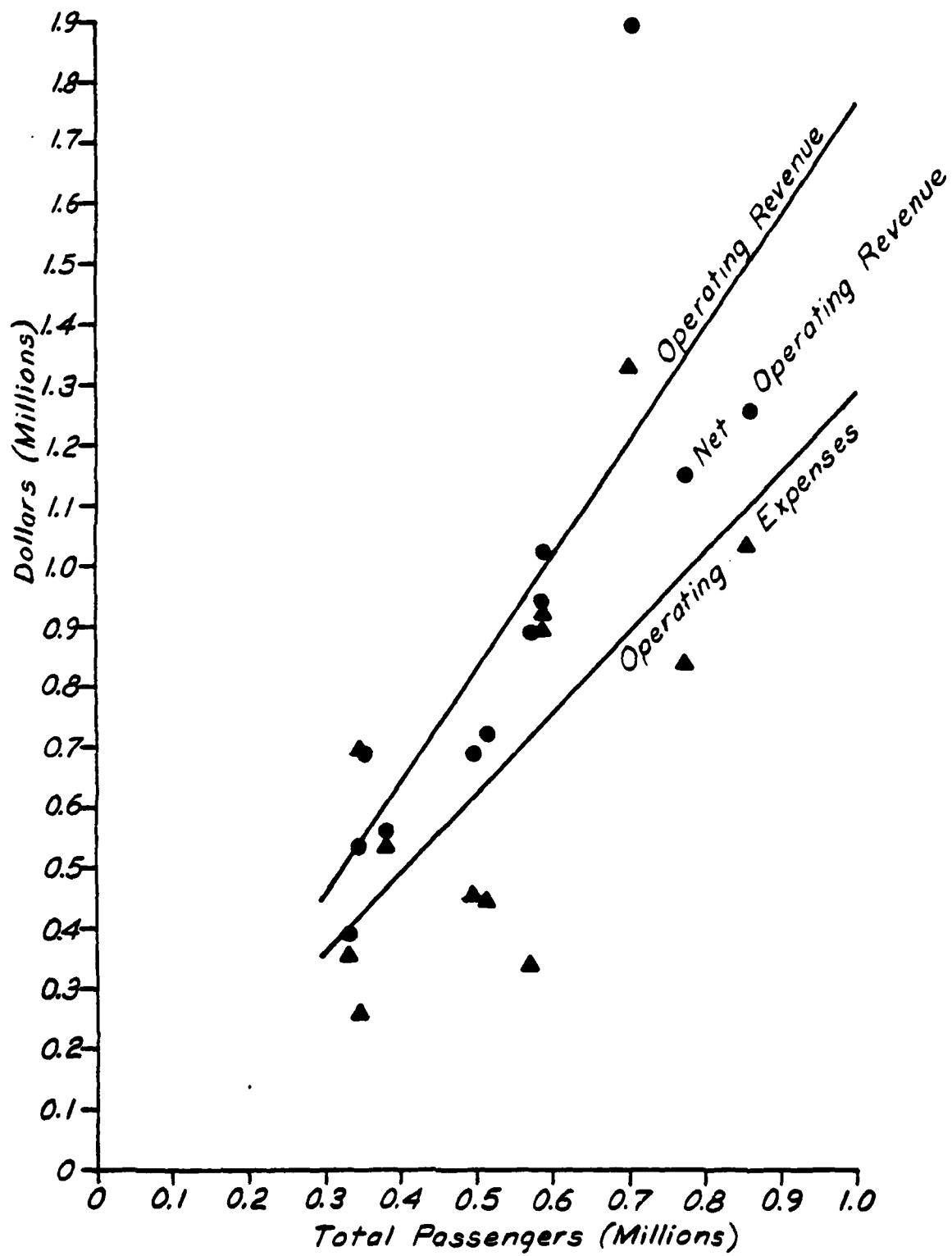


FIGURE 3
AIRPORTS WITH TOTAL ANNUAL PASSENGERS
GREATER THAN 0.3 MILLION & LESS THAN 1 MILLION



The coefficient of correlation for the linear regression equation with these values is 0.91, R² equals 0.828 and t equals 6.94.

A net operating revenue regression equation can be derived from the equations for operating revenues and operating expenses; its values are:

$$\text{NET OP REVENUE} = \$-87,000 + \$0.61 (\text{TOT PASS})$$

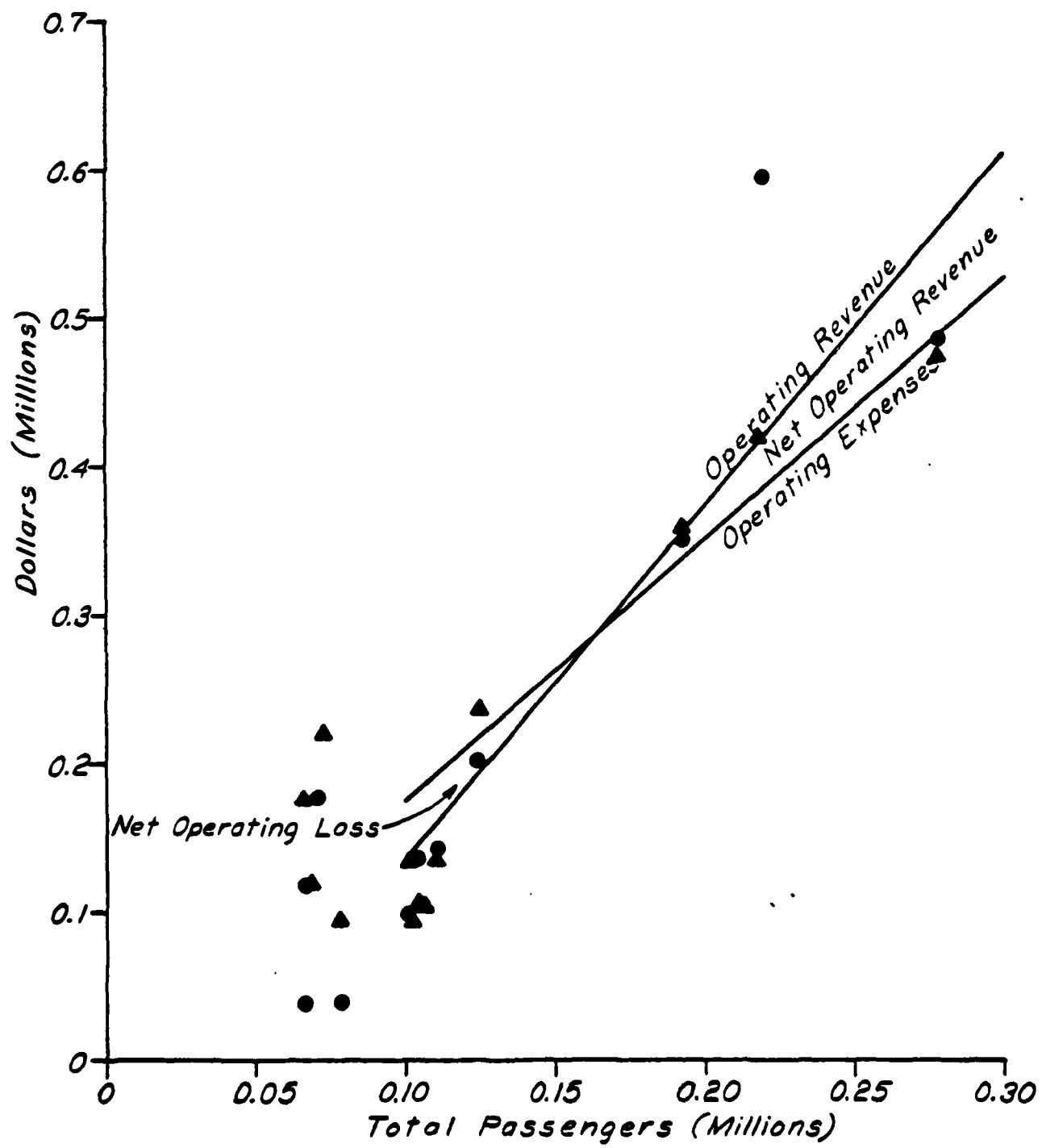
Figure 4 portrays these equations visually. The graph in Figure 4 states that airports below 150,000 annual passengers may not be expected to earn net operating revenues while airports above 150,000 annual passengers have a chance to earn some net operating revenues. The distribution of data suggests that the chances of earning net operating revenues are slim in the 150,000 to 250,000 range and improve to better than 50% in the 250,000 to 300,000 range.

5. General Aviation Airports

Various regression forms were run for general aviation airports in the Large, Medium and Small categories. Neither operating revenues nor operating expenses were found to relate in a statistically significant way to annual aircraft operations levels. The highest coefficient of correlation achieved on any of the regression runs was 0.34. Thus, no estimating equations of value were derived.

An examination of the data base suggests that it is the unusual general aviation airport which earns net operating revenues. The general aviation airport which does so will usually have well-developed industrial property or a large number of based aircraft (100-200) with noticeable corporate aircraft activity. Herndon Airport in Orlando, Florida is but one case in point. In 1976 that airport earned net operating income of \$144,629 on operating revenues of \$395,949. Revenues of \$218,160 from commercial/industrial leases accounted for 55% of total operating revenues. The financial survival of general aviation airports is largely attributable to the tax support of local governments as evidenced by the financial statements provided in the data base.

FIGURE 4
AIRPORTS WITH
LESS THAN 0.3 MILLION TOTAL
ANNUAL PASSENGERS



C. Regression Analysis: Net Income, Amortization

1. Airports With Over 4 Million Annual Passengers

Regressions were run for airports in this category (see Table 9) and a good "fit" was obtained with the form $Y = b + mX$. For net income the values of the derived regression equation are:

$$\text{NET INC} = \$-2,245.00 + 1.028 \text{ (TOT PASS)}$$

The coefficient of correlation for this regression equation is 0.97 R^2 equals 0.95 and t equals 15.71.

For amortization, the values of the derived regression equation are:

$$\text{AMORT} = \$-863,000 + \$0.37 \text{ (TOT PASS)}$$

The coefficient of correlation for this regression equation is 0.99, R^2 equals 0.79 and t equals 5.82.

2. Airports With 1 Million to 4 Million Annual Passengers

Regressions were run for airports in this category (see Table 10) and good "fits" could not be obtained with initial efforts. For net income a reasonable fit was obtained only by deleting Indianapolis, Baltimore/Washington Int'l and Reno (all showing negative net income) from the data base. The regression equation obtained after these deletions is:

$$\text{NET INC} = \$-1,241,000 + \$1.17 \text{ (TOT PASS)}$$

The coefficient of correlation for this regression equation is 0.77, R^2 equals 0.59 and t equals 3.79.

The regression equation obtained using all data points in the sample is:

$$\text{NET INC} = 156,000 + 0.30 \text{ (TOT PASS)}$$

with a correlation coefficient of 0.288.

Amortization does not relate well to activity indicators whether passengers or aircraft operations. The "best" regression obtained was as follows:

$$\text{AMORT} = \$-22,000 + \$0.47 \text{ (TOT PASS)}$$

The coefficient of correlation for this regression equation is 0.23..

TABLE 9

NET INCOME & AMORTIZATION
AIRPORTS WITH OVER 4 MILLION
ANNUAL PASSENGERS

| <u>AIRPORT</u> | <u>NET INCOME</u> (\$000) | <u>AMORTIZATION</u> (\$000) | <u>TOTAL PASSENGERS</u> (000) |
|----------------|------------------------------|--------------------------------|----------------------------------|
| Phoenix | 4,958 | 2,040 | 4,458 |
| Los Angeles | 23,248 | 9,270 | 24,670 |
| San Francisco | UNK * | UNK | 16,332 |
| Denver | 10,789 | 1,084 | 11,050 |
| Tampa | 1,680 | 1,891 | 4,826 |
| New Orleans | 2,319 | 585 | 4,570 |
| Detroit | 3,895 | UNK | 7,654 |
| Kansas City | 3,564 | 1,250 | 4,948 |
| St. Louis | 4,157 | 610 | 7,812 |
| Las Vegas | 4,692 | 924 | 6,688 |
| Cleveland | 4,212 | 2,451 | 5,704 |
| Philadelphia | 5,620 | UNK | 7,924 |
| Pittsburgh | 5,071 | UNK | 7,572 |
| Houston | 3,768 | UNK | 6,336 |

*UNK indicates that interest expense was not shown in non-operating expenses so that the net income figure would be incorrect.

TABLE 10

NET INCOME & AMORTIZATION
AIRPORTS WITH 1 TO 4 MILLION
ANNUAL PASSENGERS

| <u>AIRPORT</u> | <u>NET INCOME</u> (\$000) | <u>AMORTIZATION</u> (\$000) | <u>TOTAL PASSENGERS</u> (000) |
|-----------------------|------------------------------|--------------------------------|----------------------------------|
| Tucson | 254 | 170 | 1,438 |
| West Palm Beach | 628 | 125 | 1,512 |
| Indianapolis | (593) | 1,360 | 2,592 |
| Louisville | 1,475 | 750 | 1,746 |
| Balt/Washington Int'l | (65) | UNK | 3,012 |
| Omaha | 1,280 | 259 | 1,616 |
| Albuquerque | 397 | UNK | 1,620 |
| Reno | (398) | 218 | 1,090 |
| Albany | 31 | 270 | 1,122 |
| Rochester | 38 | UNK | 1,600 |
| Columbus | 1,050 | UNK | 2,144 |
| Nashville | 688 | 3,708 | 1,778 |
| Salt Lake City | 1,835 | 325 | 2,708 |

3. Airports With 300,000 to 1 Million Annual Passengers

For airports in this category (see Table 11) all regressions run were unsatisfactory yielding negative relationships between traffic levels, net income and amortization. Coefficients of correlation were negative and low value (less than 0.15).

4. Airports With Less Than 300,000 Annual Passengers

For airports in this category (see Table 12) all regressions run were unsatisfactory yielding little relationship between traffic levels, net income and amortization. It is important to note that airports in this category reported significant amounts of tax income or other local funds in non-operating revenues.

5. General Aviation Airports

As with earlier attempts to estimate operating revenues and expenses for these airports, regression runs for net income and amortization were unsatisfactory. No significant relationships between traffic levels, net income and amortization were found.

D. Evaluation and Discussion

1. Relationship of Financial Results to Traffic Level

One would intuitively expect to find that an airport's financial operating results bear some relationship to some measure of its activity: passengers, or aircraft operations, or both. The analysis in this section suggests such a relationship does in fact exist and can be demonstrated using empirical data. But there are changes in the extent of the relationship as air carrier airports with lower activity levels are analysed and the relationship at general aviation airports is not nearly as strong as it is at air carrier airports. Also, except for the larger airports, the relationship between activity and net income, amortization is not very strong at all. There are some rather reasonable explanations for these deviations and it is worthwhile to discuss the major ones.

a. Variation In Pricing Policy

At the large air carrier airport it can be said for all practical purposes that a fee is charged by the airport for every function or activity that takes place at the airport. Landings and takeoffs, parking and storage of aircraft, use of space in all buildings, use of land, parking of automobiles, use of taxies, rental cars, restaurants, purchase of newspapers, watching of television and use of the bathrooms are all items for which the airport has established a price and receives revenue. The establishment of prices for these functions and activities is usually the result of detailed study of the airport's operating and financing costs so that the airport management seeks to set prices that assure recovery of these costs.

TABLE 11

NET INCOME & AMORTIZATION
AIRPORTS WITH 300,000 TO 1 MILLION
ANNUAL PASSENGERS

| <u>AIRPORT</u> | <u>NET INCOME</u> (\$000) | <u>AMORTIZATION</u> (\$000) | <u>TOTAL PASSENGERS</u> (000) |
|--------------------|------------------------------|--------------------------------|----------------------------------|
| Fresno | 352 | UNK | 770 |
| Colorado Springs | 539 | 78 | 572 |
| Boises | 222 | 70 | 858 |
| Jackson | 444 | UNK | 702 |
| Billings | 105 | 70 | 580 |
| Toledo | (46) | 0 | 582 |
| Charleston (W. VA) | 850 | 312 | 510 |
| Sioux Falls | 202 | 60 | 496 |
| Baton Rouge | 44 | 0 | 376 |
| Portland (Maine) | 268 | UNK | 338 |
| Lansing | 1,033 | 0 | 346 |
| Eugene | 10 | 65 | 332 |

TABLE 12

NET INCOME & AMORTIZATION
AIRPORTS WITH LESS THAN 300,000
ANNUAL PASSENGERS

| <u>AIRPORT</u> | <u>NET INCOME</u> (\$000) | <u>AMORTIZATION</u> (\$000) | <u>TOTAL PASSENGERS</u> (000) |
|-----------------|------------------------------|--------------------------------|----------------------------------|
| Tuscaloosa | (156) | 0 | 72 |
| Chico (Cal.) | 154 | UNK | 68 |
| New Haven | (149) | 125 | 66 |
| Paducah | 28 | UNK | 106 |
| Orleans (Mass.) | (9) | UNK | 194 |
| Lebanon | 10 | UNK | 80 |
| Kinston | .2 | UNK | 102 |
| Bismarck | 284 | 102 | 238 |
| Lawton | 130 | 0 | 106 |
| Burlington | 120 | UNK | 279 |
| Charlottesville | 10 | 0 | 112 |
| Yakima | (2) | 10 | 124 |

Some prices are set by administrative fiat -- these are ordained -- while others are set by the "marketplace" either through negotiations (bargaining) with users or through a bidding process in which many offerors (concessionnaires) compete for limited airport space and win space only if they are equal in service and highest in bid.

This alliance between prices and activity at the larger airports assures a direct relationship between activity and operating revenues. The alliance is strong (prices can reflect at least costs) because larger airports are valuable centers of concentrated economic activity (large hubs account for about 68% of total passengers in the U.S.); thus a high demand for their use virtually assures a sound financial condition.

Such is not the case as one moves down the activity spectrum among air carrier airports and especially when one views circumstances at general aviation airports. Many activities at general aviation airports are "free" (but costless only to the user). More often than not at general aviation airports there is no landing fee and no auto parking fee (two of the largest revenue sources at larger airports). Instead revenues come from aircraft hangaring and storage fees, fuel flowage fees, rentals for maintenance and repair shops, etc. The relationship between these fees and traffic activity is remote. For example, of two aircraft hangared at an airport and paying an identical monthly charge for the hangars, one might be flown every day and the other only once a month. Some based aircraft may purchase most of their fuel at their home airport while others may frequently buy elsewhere.

There is also a difference in market strength among airports. The smaller air carrier airport because of its lower activity level is not as economically attractive to an individual airline or prospective concessionnaire as is the larger high activity airport. Thus, the smaller airport is likely to receive a lesser price for the services it provides and some services (such as auto parking lots) may not yield any revenue to the airport while other services (e.g., restaurants) may not be provided at all and are thus lost as revenue sources.

Variation in pricing policy and its close relative, market strength, are major reasons why the relationship of operating revenue and traffic activity weakens as airport activity decreases; they are also major reasons why, typically, smaller airports have difficulty in earning operating revenues sufficient to cover operating expenses.

b. Variations In Asset Cost, Age; Financing Mechanism

The regressions for net income and amortization vs. traffic levels showed a significant coefficient of correlation only at airports with over 1 million annual passengers (though amortization for airports in the 1 million to 4 million category had a low coefficient of correlation).

It was not expected that a relationship between activity level, net income and amortization would necessarily be found to obtain for all airport groups and there are reasons to believe that the relationship would

not obtain for a particular airport over time. The logic for this runs along the following lines: Net income is a residual of the difference between net operating revenues plus non-operating revenues less non-operating expenses. For many airports the major source of non-operating revenues is interest earned on investments; these investments are usually sources obtained from bond financing and placed in short-term notes until needed. For these same airports the primary non-operating expense is for interest on existing debt. Thus, for these airports the bulk of non-operating revenues and expenses is related to financing of debt for development. Debt for development is issued primarily to build facilities for future traffic levels, thus one would not expect non-operating revenues and expenses and therefore net income to relate very strongly to current traffic levels.

It is also useful to note that the initial cost and age of assets varies from airport to airport even among those with comparable traffic levels. Two airports with comparable traffic (and perhaps comparable existing traffic capacity) may have been built ten or more years apart. The airport built more recently could show higher amounts on its books for interest and amortization for any one of several reasons:

- o Cost of the younger airport's initial facilities were higher due to inflation
- o The older airport may have retired most or all of its initial debt
- o The younger airport may have built a greater capacity and thus incurred a greater debt

Another non-traffic factor which affects the level of interest expense and amortization is the financing mechanism used. Many larger airports use revenue bonds as the primary vehicle for financing capital development. Some larger airports and many smaller airports have used general obligation bonds as the primary vehicle. The general obligation bond will usually have an effective interest rate which is 1% to 1.5% lower than the interest rate of a revenue bond. Airports where general obligation bonds are used would thus show a lower interest expense than airports using revenue bonds.

2. "Break-even" Traffic Levels; "Efficiency" Factors

It has been shown up to this point that a larger airport has a better chance of earning net operating revenues and net income than does a smaller airport. Yet even within each airport size group there are variations of this earning capability. The regression equations developed in this report show that airports in the over 4 million annual passengers category do not cover operating expenses (operating break-even) until traffic reaches a level of approximately 456,000 passengers. For an airport in this group with 5 million annual passengers to net operating revenue would be \$4,744,000 or \$0.948 per passenger. For an airport in this category with 15 million annual passengers the net operating revenue would be \$15,184,000 or \$1.01 per passenger. Thus, the larger airports in these groups are able to earn higher per passenger net operating revenues than are the smaller airports in this category. Call this the efficiency factor. It is important for the efficiency factor to increase

with airport size within an airport size category for it was found by regression analysis of debt service (interest plus amortization) that debt service per passenger increases with airport size. For airports in the over 4 million category for example debt service per passenger at 5 million annual passengers is \$0.56 while at 15 million annual passengers it is \$0.63 [NOTE: The regression equation obtained for debt service as a function of annual passengers for airports in the over 4 million annual passengers category is:

$$\text{DEBT SER} = \$-524,000 + 0.669 (\text{TOT PASS})$$

with correlation coefficient of 0.84] This finding must be noted with some care in light of the suggestion that debt service reflects investment for expansion and, thus, some level of traffic higher than currently exists.

Efficiency factors for the various airport size groups can be summarized as follows for selected passenger traffic levels:

TABLE 13

NET OPERATING REVENUE
"EFFICIENCY" FACTORS

- o Airports Over 4 Million Passengers
 - At 5 Million Passengers - 0.948
 - At 15 Million Passengers - 1.01
 - At 25 Million Passengers - 1.02
- o Airports With 1 Million to 4 Million Passengers
 - At 1 Million Passengers - 0.331
 - At 2.5 Million Passengers - 0.438
 - At 3.5 Million Passengers - 0.458
- o Airports With 300,000 to 1 Million Passengers
 - At 300,000 Passengers - 0.305
 - At 600,000 Passengers - 0.42
 - At 900,000 Passengers - 0.458
- o Airports With Less Than 300,000 Passengers
 - At 100,000 Passengers - (0.26)
 - At 175,000 Passengers - 0.112
 - At 250,000 Passengers - 0.262

An important feature to note from this listing of efficiency factors is that in each airport size group there is an increase in the efficiency factor as traffic increases but the rate of that increase declines as traffic increases. This suggests analytically what one would expect intuitively: that an airport of a given facility size has an optimal level of traffic activity; optimal in the economic sense being defined as that traffic level where marginal revenue equals marginal costs -- the point at which any increase in traffic would cause the efficiency factor to decline.

3. Requirements for Local Funds

An important additional finding is that as airport size decreases the amount of local tax revenues and other local cash contributions in non-operating revenues increases. This reflects the inability of smaller airports to generate net operating revenues sufficient to cover interest expense and amortization. Significant amounts of these monies begin to show up in the 300,000 to 1 million annual passengers category and become much more widespread for airports in the less than 300,000 annual passengers category. Of the twelve airports in the less than 300,000 category shown in Table 12, only five had some net income without local taxes or other local tax contributions. The need for local funds is acute at general aviation airports even at some of the larger ones.

4. Some Tentative Conclusions

The preceding analysis suggests certain statements that may be made about the financial status of air carrier airports within groups classed by level of passenger activity and about the financial status of general aviation airports. The statements must be regarded as general and suggestive taking precaution to note that the financial status of any particular airport may vary considerably from the "norm" for its group. The statements follow:

a. Larger air carrier airports (over 4 million annual passengers) earn net operating revenues. The net operating revenue earning capability is directly related to traffic volume and net operating revenue per passenger increases with activity.

b. The net operating revenue of larger air carrier airports when combined with non-operating revenue is sufficient to pay annual interest charges and amortization of existing debt and still retain a margin of income for additional financing.

c. Air carrier airports with 1 to 4 million annual passengers typically earn net operating revenue although there are a few exceptions to this generalization. Net operating revenue is normally related to traffic volume but again there are exceptions.

d. The net operating revenue of air carrier airports with 1 to 4 million annual passengers when combined with non-operating revenue is typically sufficient to pay annual interest charges although there are exceptions to this generalization even for airports in the higher activity range of this category.

Capability to pay amortization is mixed with about half of the airports in this group showing sufficient net income to do so. After payment of amortization a few airports in this group have a surplus to support additional financing.

e. Air carrier airports with 300,000 to 1 million annual passengers typically earn net operating revenue although there is an occasional operating loss and the amount so earned is often measured in tens of thousands of dollars.

f. For a few of the airports in the 300,000 to 1 million category, net operating revenue plus non-operating revenue (without additional local taxes or other funds) is sufficient to pay annual interest and amortization. For others in this group local funds are required to accomplish this. Little additional financing capability exists.

g. Air carrier airports with less than 300,000 annual passengers more often than not will show an operating loss especially if the annual passenger volume is less than 150,000.

h. Airports with less than 300,000 annual passengers generally show a positive net income only because of local taxes and other local cash contributions which are made in direct support of operations. Income from airport operations is rarely sufficient to support any financing of development.

i. General aviation airports rarely earn net income from operations sufficient to support any kind of development financing.

5. Net Income, Amortization Regressions as Predictors

Net income and amortization regressions derived for airports in the one to four million and over four million passengers categories can be tested for their usefulness in predicting the net income or amortization for airports at various activity levels. Table 13A shows actual net income vs net income computed using the regression equations for airports in the one to four million and over four million passenger categories. Table 13B shows actual amortization vs computed amortization for the over four million category.

TABLE 13A
ACTUAL VS. COMPUTED
NET INCOME

| <u>AIRPORT</u> | <u>TOTAL PASS.</u> (000) | <u>ACTUAL NET INCOME</u> (\$000) | <u>NET INCOME COMPUTED FROM REGRESSION EQUATION</u> (\$000) | <u>DIFFERENCE COMPUTED FROM ACTUAL</u> + - % |
|-----------------|-----------------------------|---|--|---|
| Phoenix | 4,458 | 4,958 | 2,339 | - 53 |
| Los Angeles | 24,670 | 23,248 | 23,122 | < 1 |
| Denver | 11,050 | 10,789 | 9,117 | - 15 |
| Tampa | 4,826 | 1,680 | 2,717 | + 61 |
| New Orleans | 4,570 | 2,319 | 2,454 | + 6 |
| Detroit | 7,654 | 3,895 | 5,625 | + 44 |
| Kansas City | 4,948 | 3,564 | 2,842 | - 20 |
| St. Louis | 7,812 | 4,157 | 5,787 | + 39 |
| Las Vegas | 6,688 | 4,692 | 4,632 | - 1 |
| Cleveland | 5,704 | 4,212 | 3,620 | - 14 |
| Philadelphia | 7,924 | 5,620 | 5,903 | + 5 |
| Pittsburgh | 7,572 | 5,071 | 5,541 | + 9 |
| Houston | 6,336 | 3,768 | 4,270 | + 13 |
| Tucson | 1,438 | 254 | 441 | + 74 |
| West Palm Beach | 1,512 | 628 | 528 | + 16 |
| Louisville | 1,746 | 1,475 | 802 | - 46 |
| Omaha | 1,616 | 1,280 | 650 | - 49 |
| Albuquerque | 1,620 | 397 | 654 | + 65 |
| Albany | 1,122 | 31 | 72 | + 132 |
| Rochester | 1,600 | 38 | 631 | +1560 |
| Columbus | 2,144 | 1,050 | 1,267 | + 21 |
| Nashville | 1,778 | 688 | 839 | + 22 |
| Salt Lake City | 2,708 | 1,835 | 1,927 | + 5 |

TABLE 13B
ACTUAL VS. COMPUTED
AMORTIZATION

| <u>AIRPORT</u> | <u>TOTAL PASS.</u> (000) | <u>ACTUAL AMORTIZATION</u> (\$000) | <u>AMORTIZATION COMPUTED FROM REGRESSION EQUATION</u> (\$000) | <u>DIFFERENCE OF COMPUTED FROM ACTUAL</u> + - % |
|----------------|-----------------------------|---|--|--|
| Phoenix | 4,458 | 2,040 | 786 | - 61 |
| Los Angeles | 24,670 | 9,270 | 8,264 | - 11 |
| Denver | 11,050 | 1,084 | 3,225 | + 197 |
| Tampa | 4,826 | 1,891 | 922 | - 51 |
| New Orleans | 4,570 | 585 | 828 | + 41 |
| Kansas City | 4,948 | 1,250 | 968 | - 23 |
| St. Louis | 7,812 | 610 | 2,027 | + 232 |
| Las Vegas | 6,688 | 924 | 1,611 | + 74 |
| Cleveland | 5,704 | 2,451 | 1,247 | - 49 |

As the Tables show, the regression equations are good predictors (with plus or minus 20% as criteria) in some cases, coming within 1% or less of actual net income in two cases, and bad predictors in other cases, missing by as much as 1560% in one case (albeit an extreme one). We are interested in the balance of net income minus amortization as it is this amount which is available for servicing additional debt (interest plus amortization). Thus Table 13C compares this actual balance vs. the balance computed from the regression equations for net income and amortization.

TABLE 13C
BALANCE OF NET INCOME LESS AMORTIZATION
ACTUAL VS. COMPUTED
(Derived from Table 13A & 13B)

| <u>AIRPORT</u> | <u>ACTUAL BALANCE</u> (\$000) | <u>BALANCE BASED ON REGRESSION EQUATIONS</u> (\$000) | <u>DIFFERENCE OF REGRESSION BALANCE FROM ACTUAL</u> + - % |
|----------------|--------------------------------------|---|--|
| Phoenix | 2,918 | 1,553 | - 47 |
| Los Angeles | 13,978 | 14,858 | + 6 |
| Denver | 9,705 | 5,892 | - 39 |
| Tampa | - 211 | 1,795 | + 950 |
| New Orleans | 1,734 | 1,626 | + 6 |
| Kansas City | 2,314 | 1,874 | - 19 |
| St. Louis | 3,547 | 3,760 | + 6 |
| Las Vegas | 3,768 | 3,021 | - 20 |
| Cleveland | 1,761 | 2,373 | + 35 |

Table 13C provides some comfort for the analyst attempting to project the net funds available for servicing additional debt for airport development. On balance, the analyst would prefer to underestimate the availability of these net funds based on the simple premise that it is better to have money left over than to run short. Table 13C suggests that use of the net income and amortization regression equations for airports in the over four million enplanements category will underestimate the net funds available for additional financing for about half of the cases and overestimate by a small margin for about a third of the cases. The table also suggests there would be limited cases where use of the equations would considerably overestimate net funds available. In the Tampa case the overestimate is 950%. This point will be returned to in Section V.

IV. ESTIMATION OF AIRPORT INVESTMENT NEEDS DURING THE FY 1981 THROUGH FY 1990 PERIOD

A. Methodology

In order to arrive at an estimate of the total investment to be required for all airports in the National Airport System Plan during the 1981 through 1990 period analyses of selected available data were made.

Air Carrier airports were placed in the same size groups as in section III of this report. Comparison of the Hub classification with the size groups used in this report is shown below.

TABLE 14

AIR CARRIER AIRPORT GROUPS DEFINED BY PASSENGERS SERVED (THOUSANDS)

| Hub Class. | Defined by the Hub System | | Grouping In This Report |
|------------|--|---------------|---------------------------|
| | Range of Passengers (1976) Enplaned | Total (Est.) | Range of Total Passengers |
| Large | 2153 or more | 4306 or more | 4000 or more |
| Medium | 538 to 2153 | 1076 to 4306 | 1000 to 4000 |
| Small | 108 to 538 | 216 to 1076 | 300 to 1000 |
| Non | Less than 108 | Less than 216 | Less than 300 |

The groupings of general aviation airports as between commuter service, reliever and other as given in the National Airport System Plan 1978-87 was compared to the airport groups of large, medium and small general aviation airports developed in a previous study which provided the sample data base for these airports. It was found that for practical purposes the NASP grouping was the most reasonable, and was used in the final forecast of investment needs.

To determine total investment needs within each of the above groups the NASP was used to provide the amounts of eligible investment during the 1978-82 and 1983-87 periods shown.

Eligible investment includes all items for which matching funds are available under the Airport Development Aid Program. However in most all projects undertaken, there are some items of construction or acquisition that are not eligible.

One example is an airport terminal building for which the Federal Aid is limited to 50% of the cost of public areas only. Consequently the amounts shown in the National Airport System Plan for terminal buildings show only the costs of the public areas portion of the total cost of the building. The public areas in terminal buildings will vary from a low of about 45% to a high of around 55% or an average of about 50% of the total space. Therefore in any terminal building project the total investment needed for the building will be approximately twice the amount indicated in the NASP.

Other examples of ineligible items are

- o Land for or construction of Auto Parking Lots
- o Air Cargo terminals
- o Development of commercial and aviation areas such as:
 - rental car maintenance facilities
 - hotel or motel facilities
 - special facilities for in-flight kitchens
 - taxiways to serve private hangar areas
 - hangars and related non-itinerant storage aprons
 - airport maintenance, storage and other buildings
- o Some utilities relocations and/or extensions
- o Some service and access roads

Our experience in developing airport improvement programs and a review of some of those completed during the last seven years along with a check of current program budgets for seven air carrier airports indicates a relationship in the range of total passenger groups and the amount of public funds expended for items of construction ineligible under the Airport Development Aid Program.

With respect to general aviation airports based on our past experience we find that the public funds expended for items not eligible under the Airport Development Aid Program does not appear to vary consistently with the size groupings. The major reason for this is that most of the ineligible items for these airports are constructed with private funds. Here again we developed a relationship between the eligible and ineligible items for these airports.

Based on the above a series of formulae were developed to establish the ineligible investment for the subgroups of air carrier and general aviation airports as follows:

Airport investment required for items ineligible under the current Airport Development Aid Program:

Airports serving 4 million passengers or more:

- o 100% of eligible terminal building costs, plus
- o 30% of total terminal building costs for other related landside development, plus
- o 10% of all other eligible costs

Airports serving less than 4 million passengers:

- o 100% of eligible terminal building costs, plus
- o 15% of total terminal building costs for other related landside development, plus
- o 5% of all other eligible costs

General Aviation Airports:

- o 10% of total eligible costs

These formulae were applied to selected numbers of airports within the above groups as defined in the "Terminal Area Financial Data Study". The airports selected and the resultant estimates are included as in the Appendix. Where feasible contact with individual airports in each group was made to determine the percent of eligible and ineligible costs in their proposed capital investment budgets. These data are presented in Table 15.

The above analysis established the estimated percentage of ineligible airport investment needs in relation to the total investment. It is our conclusion based on past experience working with detailed budgets from the largest to the smallest airports that the above percentages are within a level of accuracy that could yield results within 15% of total dollars needed for airport development over the 1978 through 1987 period.

B. Investment Projections

The next step in the analysis required the projection of the investment requirements to cover the 1981-1990 period.

The National Airport System Plan 1978-1987 was used as the source for the eligible items of airport investment needs during this period.

The procedure adopted was to reduce the requirements shown for the 1978-82 five year period in relation to the federal funds available during 1978, 1979, and 1980. It was assumed here that the Airport Development Aid Program funds available for 1979 and 1980 would equal the authorized amounts of 575 and 610 million dollars respectively.

To estimate the amount of eligible airport requirements that would be fulfilled for each group of airports by 1981 it was also assumed that discretionary fund uses within the groups would be in the same proportion as enplanement fund apportionments and general aviation airport entitlement apportionments.

The remaining unfulfilled eligible investment needs for 1981-1982 plus those shown for 1983-1987 were taken as the investment needs for eligible items during the 1981-1987 time period. These needs for 1988-1990 time period were estimated by assuming they would continue at the same annual rate as shown in the NASP for the 1983-1987 period.

The total airport development costs were then estimated applying the percentage distributions as between eligible and ineligible items previously defined.

The adjustment of some of the total small hub and non hub investment needs to reflect the desired total passengers served was made based on the percentage of small hubs which had fewer than 300,000 total passengers.

The results of the capital investment needs analyses are given for the 1981-82, 83-87 and 88-89 periods and eligible, ineligible and total investment needs are shown for each segment, as well as totals for the years 1980-89 in Table 16.

TABLE 15

ESTIMATED TOTAL AIRPORT INVESTMENT
NEEDS 1978-87 OF SELECTED SAMPLES
AND 1978-87 NASP

| <u>Airport Group</u> | (1976 \$000) | | | | <u>Remarks</u> | |
|-----------------------|----------------------------|-----------------------------|---------------------------------|-------------------|----------------|--|
| | <u>Eligible Under ADAP</u> | <u>Ineli-ble Under ADAP</u> | <u>Total In-vestment needed</u> | | | |
| I. AIR CARRIER | | | | | | |
| A. Large Hubs | | | | | | |
| 1. Sample 18 Airports | 1,394,780 | 568,046 | 1,962,826 | 10 years | | |
| % Total | 71 | 29 | 100 | | | |
| 2. Check 3 Airports | | | | | | |
| Budget | 55,437 | 31,130 | 86,567 | 4 year budget | | |
| % Total | 64 | 36 | 100 | | | |
| Budget | 32,891 | 10,271 | 43,162 | 5 year budget | | |
| % Total | 76 | 24 | 100 | | | |
| Budget | 21,960 | 12,993 | 34,953 | 6 year budget | | |
| % Total | 63 | 37 | 100 | | | |
| 3. Percentage Adopted | 70 | 30 | 100 | | | |
| B. Medium Hubs | | | | | | |
| 1. Sample 16 Airports | 602,317 | 159,864 | 762,182 | 10 years | | |
| % Total | 79 | 21 | 100 | | | |
| 2. Check 2 Airports | | | | | | |
| Budget | 67,300 | 20,700 | 48,000 | 5 year budget | | |
| % Total | 76 | 24 | 100 | | | |
| Budget | 580 | 600 | 1,180 | 1-1/2 year budget | | |
| % Total | 49 | 51 | 100 | | | |
| 3. Percentage Adopted | 75 | 25 | 100 | | | |
| C. Small Hubs | | | | | | |
| 1. Sample 23 Airports | 321,957 | 85,567 | 407,524 | 10 years | | |
| % Total | 79 | 21 | 100 | | | |
| 2. Check 1 Airport | 700 | 0 | 700 | 1 year | | |
| % Total | 100 | 0 | 100 | | | |
| 3. Percentage Adopted | 80 | 20 | 100 | | | |
| D. Non Hubs | | | | | | |
| 1. Sample 25 Airports | 100,023 | 22,163 | 122,186 | 10 years | | |
| % Total | 82 | 18 | 100 | | | |
| 2. Check 1 Airport | 1,800 | 225 | 2,025 | 1 year | | |
| % Total | 89 | 11 | 100 | | | |
| 3. Percentage Adopted | 85 | 15 | 100 | | | |

1/ From NASP 1978-87

TABLE 15 (Cont'd)
 ESTIMATED TOTAL AIRPORT INVESTMENT NEEDS 1978-87 OF SELECTED AMPLES AND 1978-87
 NASP

| <u>Airport Group</u> | (1976 \$000) | | | | <u>Remarks</u> | |
|--------------------------------|------------------------------------|--|--|---------|----------------|--|
| | <u>Eligible Under ADAP</u> | <u>Ineli- ble Under ADAP</u> | <u>Total In- vestment needed</u> | | | |
| II. General Avia. Arpts | | | | | | |
| A. Large | | | | | | |
| 1. Sample 15 Airports | 139,083 | 1/ | 13,908 | 152,991 | 10 years | |
| % Total | 91 | | 9 | 100 | | |
| 2. Check 2 Airports | | | | | | |
| Budget | 4,000 | | 4,000 | 8,000 | 5 years | |
| % Total | 50 | | 50 | 100 | | |
| Budget | 1,200 | | 149 | 1,349 | 1 to 2 years | |
| % Total | 89 | | 11 | 100 | | |
| B. Medium | | | | | | |
| 1. Sample 29 Airports | 62,940 | 1/ | 6,294 | 69,234 | 10 years | |
| % Total | 91 | | 9 | 100 | | |
| 2. Check 1 Airport | 676 | | 114 | 790 | 1 year | |
| % Total | 86 | | 14 | 100 | | |
| C. Small | | | | | | |
| 1. Sample 35 Airports | 52,500 | 1/ | 5,250 | 57,750 | 10 years | |
| % Total | 91 | | 9 | 100 | | |
| 2. No Effective Check | ----- | | ----- | ----- | | |
| D. Adopt for All | | | | | | |
| | 90 | | 10 | 100 | | |

1/ From NASP 1978-87

TABLE 16

**ESTIMATED AIRPORT DEVELOPMENT COSTS
(1976 DOLLARS, MILLIONS)**

| Airport Group | FY 81 and 82 | | FY 83 through 87 | | FY 88 through 90 | |
|--|--------------|------------|------------------|----------|------------------|-------|
| | Eligible | Ineligible | Total | Eligible | Ineligible | Total |
| I. Air Carrier <u>2/</u> | | | | | | |
| A. Large Hubs | 913 | 391 | 1,304 | 804 | 345 | 1,149 |
| B. Medium Hubs | 472 | 157 | 629 | 632 | 211 | 843 |
| C. Small Hubs less portion listed under Non Hubs <u>4/</u> | 458 | 115 | 573 | 247 | 62 | 309 |
| D. Non Hubs plus portion of Small Hubs <u>5/</u> | 1,052 | 186 | 1,238 | 482 | 85 | 567 |
| E. Sub Totals | 2,895 | 849 | 3,744 | 2,165 | 703 | 2,868 |
| II. Other | | | | | | |
| A. Commuter Service | 241 | 27 | 268 | 114 | 13 | 127 |
| B. Reliever | 625 | 69 | 694 | 229 | 25 | 254 |
| C. General Aviation | 2,030 | 226 | 2,256 | 661 | 73 | 734 |
| D. Sub Totals | 2,896 | 322 | 3,218 | 1,004 | 111 | 1,115 |
| III. Totals | 5,790 | 1,171 | 6,962 | 3,169 | 814 | 3,983 |
| | | | | | | 1,900 |
| | | | | | | 490 |
| | | | | | | 671 |
| | | | | | | 2,390 |

| | |
|-----------|---|
| <u>1/</u> | Under the Current ADAP |
| <u>2/</u> | Total Passengers four million or more |
| <u>3/</u> | Total passengers less than four million, to one million or more |
| <u>4/</u> | Total passengers less than one million, to three hundred thousand or more |
| <u>5/</u> | Total passengers less than three hundred thousand |

TABLE 16(Cont'd)

ESTIMATED AIRPORT DEVELOPMENT COSTS (1976 DOLLARS, MILLIONS)

| <u>Airport Group</u> | <u>Totals FY 81 through 90</u> | | |
|---|--------------------------------|-------------------|---------------|
| | <u>Eligible 1/</u> | <u>Ineligible</u> | <u>Total</u> |
| I. Air Carrier | | | |
| A. Large Hubs <u>2/</u> | 2,199 | 943 | 3,142 |
| B. Medium Hubs <u>3/</u> | 1,483 | 494 | 1,977 |
| C. Small Hubs less portion listed under Non Hubs <u>4/</u> | 853 | 214 | 1,067 |
| D. Non Hubs plus portion of Small Hubs <u>5/</u> | 1,823 | 322 | 2,145 |
| E. Sub Totals | 6,358 | 1,973 | 8,331 |
| II. Other | | | |
| A. Commuter Service | 423 | 48 | 471 |
| B. Reliever | 991 | 111 | 1,102 |
| C. General Aviation | 3,088 | 343 | 3,431 |
| D. Sub Totals | 4,502 | 502 | 5,004 |
| III. Totals | 10,860 | 2,475 | 13,335 |

1/ Under the Current ADAP2/ Total Passengers four million or more3/ Total Passengers less than four million, to one million or more4/ Total Passengers less than one million, to three hundred thousand or more5/ Total Passengers less than three hundred thousand

While the previously discussed analysis of selected airport groups and individual airports indicated some wide variations within the groups we believe the figures presented fall within a level of accuracy of twenty percent of the total airport investment needs over the 10 year period.

A comparison with the 1978-87 National Airport System Plan (NASP) discloses that during the ten year period the Air Carrier airports serving four million passengers or more are expected to accomplish a larger portion of the development contemplated under the NASP than any other group of airports. The first five year period of the current NASP admittedly contains items of development which are carry over items that would normally have been accomplished in prior years. Also we believe that for all except the largest Air Carrier airports the five year planning period is more easily estimated. The groups of the smaller Air Carrier and General Aviation airports are observed to be able to accomplish only short term planning.

The reasons for this are related to the difficulty of municipal financing practices to accommodate a longer range perspective as well as the fact that as groups, these airports require a subsidy for their operation and development either by the utilization of depreciation funds or direct tax income or both. The comparison data are as follows:

TABLE 17 ESTIMATED TOTAL INVESTMENT (1976 \$ MILLION)

| <u>Airport Group</u> | <u>1978-87</u> | <u>1981-90</u> |
|--|----------------|----------------|
| I. Air Carrier | | |
| A. Total Passengers 4 Million or More | \$ 3,509 | \$ 3,142 |
| B. Total Passengers Less Than 4 Million But 1 Million or More | 1,980 | 1,977 |
| C. Total Passengers Less Than 1 Million But 300,000 or More | 1,002 | 1,067 |
| D. Total Passengers Less Than 300,000 | 2,081 | 2,145 |
| E. Sub Total | 8,572 | 8,331 |
| II. General Aviation | 4,588 | 5,004 |
| III. Totals | \$13,160 | \$13,335 |

Adjustments to Forecast Total Investment

New Major Airports

The 1968 Report of the Committee on Commerce Identified as Report No. 1355, addressed the question of Airport System Development Requirements in connection with the "Airport and Airways Development Act of 1968".

This report listed eleven new Major Airports and improvements for two other existing airports as adjustments to the then forecast airport needs. The total estimated Investment to be required during the 1974 to 1983 period was placed at between two and three billion dollars. This would be equivalent to between 3.2 and 4.8 billion dollars (1976).

A review of the 1978-87 NASP shows an estimated Investment need for three new airports of 507 million dollars, and an Investment need at 18 existing major airports of 2.2 billion dollars (1976). When added together the total Investment need indicated for the 18 major airports is 2.7 billion dollars (1976).

A review of the Report on "Establishment of New Major Public Airports in the United States" prepared by the Secretary of Transportation pursuant to Section 26 of the Airport and Airway Development Act Amendments of 1976 (P.L. 94-353) discloses that under any of the scenarios presented, less total funds were shown to be needed for New Major airports than are estimated as Investment needs and included in the 1978-87 NASP for Major Airports.

However, comparing the three sources of estimated New Major airport needs, Boston and New York appeared in the 1968 Commerce Report and in Scenarios 1, 2, and 3 of the above report. The 1978-87 NASP shows substantially less investment needed at the existing airports at these locations than the investment needs indicated by the Committee on Commerce report and the above referenced report.

Also the more recent report shows a need for a new major airport at San Francisco under all four scenarios presented.

A comparison of the Estimated Investment Required for New and Existing Major Airports from the above discussed sources is shown in Table 18.

From our review of these data it appears clear that current planning contemplates improvements at most major airports which also include provision of reliever airports that would offset the need for new airports at most of the locations. However, the most recent study would appear to indicate a potential need for three or four New Major airports by the year 2000. These are; Boston, New York, and San Francisco which appear in all scenarios except Number 4 which assumes not only an Upgraded Third Generation Air Traffic Control improvement but also the peak spreading concept to alleviate airport capacity problems.

On the basis of the above analysis we believe it prudent to assume that three major new airports will be required by the year 2000 and that two thirds of the estimated costs as given in the Secretary's report will be incurred in the 1981 to 1990 period. This would indicate the need to add to "Estimated Airport Investment Needs 1981-1990" an amount of approximately 500 million dollars.

Land Banking

The Airport Land Banking report of the Secretary of Transportation to the United States Congress pursuant to Section 26 of the Airport and Airway Development Act Amendments of 1976 (P.L. 94-353) concisely describes the probable need for and the problems associated with advance acquisition of land for future airport expansion.

The most apparent problem as brought out in the above report and confirmed by our experience in airport development planning, is the difficulty of funding for such purchases considering the demands for funds for other development needs.

TABLE 18

**COMPARISON OF THE ESTIMATED AIRPORT INVESTMENT REQUIRED
FOR NEW AND EXISTING MAJOR AIRPORTS (1976 \$000)**

| Report on Establishment of New Major Public Airports In the United States Scenario | | | | | | | | |
|--|------------------------------------|---------|--------------------------------------|---------|---------|---------|---------|---------|
| Prospective New Major Airports | 1968 Com. on Comm- erce Rep. | 1974-83 | 1978-87 NASP Selected Major Aprts | New | Exlist. | Totals | 1 | 2 |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Atlanta | --- | 199,564 | 540,594 | 740,158 | 208,000 | ----- | ----- | ----- |
| Boston | 570,000 | --- | 41,746 | 41,746 | 272,000 | 272,000 | ----- | ----- |
| Chicago | 800,000 | --- | 260,000 | 260,000 | 213,000 | ----- | ----- | ----- |
| Cincinnati | Unknown | --- | 74,027 | 74,027 | ----- | ----- | ----- | ----- |
| Cleveland | 200,000 | --- | 164,529 | 164,529 | ----- | ----- | ----- | ----- |
| Denver | --- | --- | 106,957 | 106,957 | 195,000 | ----- | ----- | ----- |
| Los Angeles | Unknown | 146,679 | 237,220 | 383,899 | ----- | ----- | ----- | ----- |
| Miami | Unknown | --- | 91,714 | 91,714 | ----- | ----- | ----- | ----- |
| Minneapolis | --- | --- | 41,161 | 41,161 | 212,000 | ----- | ----- | ----- |
| New Orleans | 230,000 | --- | 35,630 | 35,630 | ----- | ----- | ----- | ----- |
| New York | Unknown | --- | 111,233 | 111,233 | 347,000 | 221,000 | 221,000 | ----- |
| Ontario | 24,000 | --- | 38,947 | 58,947 | ----- | ----- | ----- | ----- |
| Orlando | Unknown | --- | 82,584 | 82,584 | ----- | ----- | ----- | ----- |
| Palmdale | 15,000 | --- | ----- | 0 | ----- | ----- | ----- | ----- |
| Philadelphia | --- | 81,526 | 81,526 | 285,000 | 285,000 | ----- | ----- | ----- |
| St. Louis | 226,000 | --- | 42,223 | 42,223 | 317,000 | ----- | ----- | ----- |
| San Diego | Unknown | 160,571 | 54,221 | 214,792 | ----- | ----- | ----- | ----- |
| San Francisco | --- | --- | 16,723 | 36,723 | 292,000 | 244,000 | 244,000 | 244,000 |
| Seattle | --- | --- | 133,781 | 133,781 | 242,000 | ----- | ----- | ----- |

Est 2,000,000 - 3,000,000 (\$68)
 $\frac{1.62}{1.976\$} = 3,240,000$ + 4,860,000

The legal questions pointed out in that study are real but are not universal and presumably can be solved.

As discussed in the report land banking is not new and has been undertaken by airports large and small for many years. The problem is as stated that even if eligible under ADAP a sponsor may have to wait many years for reimbursement of the federal share.

The amounts developed in the Airport Land Banking study for optimum purchase time and excluding New Major airports which have been considered separately, would amount to about 440 million dollars (1976), for the 1981-1990 period. This amount includes the amounts shown for the 1978-80 period to include all funds indicated to be needed through 1990, and should be added to the basic estimate of airport investment needs developed earlier.

V. ANALYSIS OF SELF-FINANCING CAPABILITY

A. General Approach

The financial relationships and investment projections developed in Sections III and IV can be used to gain some insight into the capability of certain airport size groups to finance capital development with airport generated net income. The detailed analysis here will concentrate on airports with more than 4 million annual passengers for two reasons:

- o Airports in the over 4 million group account for over 30% of the ADAP expenditures and an even larger percentage of the airport investment in the U.S.
- o Section III of this report produced estimating equations of better quality for these airports than for others.

A more generalized analysis will be presented for other airport groups.

The findings in Section III were presented in terms of 1976 dollars and the investment projections in Section IV were also presented in 1976 dollars. The dollar figures in this section are therefore in 1976 dollars. We wish to examine the growth in investment needs for airports in relation to the growth in their funds available to pay interest and amortization on new debt issued to finance the needed investment. The primary interest is in the capability to finance estimated investment during the FY 1981-1990 period but as the financial profile in Section III is as of 1976 it will be necessary to estimate 1977-80 investment as well.

The approach for airports in the over four million passengers category will be to trace the change in financial profile for several airport sizes (based on total passengers). This will be done by using the regression equations developed in Section III. This tracing will relate the change in financial profile to traffic growth. Growth rates for passenger traffic to be used are based on official FAA national forecasts averaged and rounded off for purposes here. For 1977-80, 5.5% is used; for 1981-85, 5.0% is used; for 1985-90, 4.5% is used. This comparative static approach will show the profile as of 1976, 1980, 1985 and 1990 and all in 1976 dollars. Elements of the profile for the over four million passengers category to be shown are:

- (1) Net Operating Revenue (computed from the operating revenue and operating expense regressions developed in Section III.)
- (2) Net Income (from the net income regression developed in Section III.)
- (3) Amortization (from the amortization regression developed in Section III.)
- (4) Balance (computed from (2) and (3).)

From this profile tracing it can be determined how much additional debt airports would take on as they grow if the regression equations were exact predictors of financial results. This additional debt can then be compared to the investment projections based on the NASP and judgments can be made as to how close the predicted profiles might be to actual results.

In Section III, the predictive usefulness of the net income and amortization regression equations derived was discussed. It will be recalled that the equations for the over four million passengers category were sometimes "good" predictors and sometimes were not. It was also shown (in Table 13C) that when the balance of net income minus amortization computed from the equations was compared to the actual balance shown on the airport's revenue and expense statement the computed balance was in all but one case either less than or not more than 20% of the actual balance. (Of the nine comparisons, four computed balances were underestimates, three were overestimates by 6% and two were overestimates by larger amounts. Thus the chance of overestimating the balance by more than 20% is small.

B. Financial Profile: Airports With Over 4 Million Passengers

Four financial profiles will be traced each beginning in 1976. The profiles will be for imaginary airports which had the following total passengers in the beginning period.

- 4 Million
- 8 Million
- 12 Million
- 16 Million

The tracing is shown in Table 19 below. Net operating revenues are computed from the regression for operating revenues and operating expenses. Net income and amortization are computed from the regression equations for these two items and the balance is net income less amortization (payment of principal on outstanding debt).

TABLE 19

Trace of Financial Profiles

| Airport Size 1976 | 1976 Profile (\$000) | 1980 Profile (\$000) | 1985 Profile (\$000) | 1990 Profile (\$000) |
|------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| <u>4 Million</u> | | | | |
| Net Operating Revenues | 3,700 | 4,697 | 6,126 | 7,752 |
| Net Income | 1,868 | 2,850 | 4,256 | 5,856 |
| Amortization | 617 | 970 | 1,477 | 2,053 |
| Balance | 1,251 | 1,880 | 2,779 | 3,803 |
| <u>8 Million</u> | | | | |
| Net Operating Revenues | 7,876 | 9,870 | 12,729 | 15,799 |
| Net Income | 5,981 | 7,945 | 10,759 | 13,960 |
| Amortization | 2,097 | 2,804 | 3,765 | 4,905 |
| Balance | 3,884 | 5,141 | 6,994 | 9,055 |
| <u>12 Million</u> | | | | |
| Net Operating Revenues | 12,052 | 15,043 | 19,331 | 24,208 |
| Net Income | 10,094 | 13,040 | 17,262 | 22,064 |
| Amortization | 3,577 | 4,637 | 6,157 | 7,885 |
| Balance | 6,517 | 8,403 | 11,105 | 14,179 |
| <u>16 Million</u> | | | | |
| Net Operating Revenues | 16,228 | 20,217 | 25,934 | 32,436 |
| Net Income | 14,207 | 18,136 | 23,767 | 30,169 |
| Amortization | 5,057 | 6,470 | 8,497 | 10,801 |
| Balance | 9,150 | 11,666 | 15,270 | 19,368 |

1. Financing Capability vs Investment Need, 4 Million Passenger Airport

Taking the airport which started with 4 million annual passengers in the initial time period, this tracing of its financial profile says that it added \$8.8 million of new debt between 1976 and 1980 (this assumes a 25-year term on the debt with annual amortization of 1/25 of the total new debt, or \$353,000 (\$970,000 is its amortization in 1980, \$617,000 is its amortization in 1976; the difference between the two is \$353,000); with a 7% interest rate the annual interest charges would be approximately \$309,000. It is also assumed that annual amortization existing in 1976 continues through all time periods though, undoubtedly, some of the bonds existing in 1976 would have been retired by or before 1990). By 1985 this airport has added another \$12.6 million in new debt (amortization has increased \$507,000 which, times 25 equals \$12.675 million) and by 1990 has added another \$14.4 million for a total of \$35.8 million for the 1977-90 period in 1976 dollars. The profile suggests that it has done so while still retaining capability for additional financing of up to \$10-12 million - if such financing were undertaken in 1985. The profile suggests the possibility for this airport to self finance approximately \$45-48 million of new development during the 1977-90 period divided as follows:

1977-80 - \$ 8.8 million
1981-85 - \$12.6 million
1986-90 - \$26.6 million*

*Some of the \$26.6 million could be financed in the 1981-85 period

How does this financing capability compare with estimates of investment needed that were made in Section III based on the NASP? To answer this estimates were made of investment needs for the 1977-90 period for the airports in the sample representing the over 4 million annual passengers group (see Table 1 for airports in sample). Phoenix, Tampa, New Orleans and Kansas City each had, in 1976 passenger counts, between 4 and 5 million. These estimated investment needs for the period 1977-90 are:

| | | |
|-------------|-----------------|-----------------|
| Phoenix | - \$210 million | From Section IV |
| Tampa | - \$ 31 million | |
| New Orleans | - \$ 38 million | |
| Kansas City | - \$ 53 million | |

Using these investment projections and assuming these four airports may be considered similar to the 4 million passenger airport profiled in Table 19, then Tampa and New Orleans would appear to have the capability to finance their needed investment, Kansas City could come close and Phoenix would fall short some \$160 million.

If only the investment eligible for federal aid is considered the estimated amounts needed at the four airports are:

| | | |
|-------------|-----------------|-----------------|
| Phoenix | - \$147 million | From Section IV |
| Tampa | - \$ 22 million | |
| New Orleans | - \$ 27 million | |
| Kansas City | - \$ 37 million | |

leaving only Phoenix with a shortfall.

2. Financing Capability vs Investment Needs, 8 Million Passenger Airport

Taking the airport which started with 8 million annual passengers in the initial time period, this tracing of its financial profile says that it added \$18 million of new debt between 1976 and 1980 (same assumptions as in #1 above). By 1985 another \$24 million is added and between 1986 and 1990 another \$28 is added for a total of \$70 million for the 1977-1990 period in 1976 dollars. The profile suggests that it has done so while retaining capability for additional financing of up to \$80 million if such financing were undertaken in 1985. The profile suggests the possibility for this airport to finance approximately \$150 million of new development during the 1977-1990 period divided as follows:

| |
|--------------------------|
| 1977-80 - \$ 18 million |
| 1981-85 - \$ 24 million |
| 1986-90 - \$108 million* |

*Some of the \$108 million could be financed in the 1981-85 period

Comparing this with airports from our sample shows the following airports of size similar to our 8 million having estimated investment needs for the 1977-90 period of:

| | | |
|--------------|-----------------|-----------------|
| Detroit | - \$125 million | From Section IV |
| St. Louis | - \$ 51 million | |
| Philadelphia | - \$110 million | |
| Pittsburgh | - \$ 39 million | |

Based on the profile, all four of these airports would have a high capability of self-financing their estimated investment needs.

3. Financing Capability vs Investment Needs, 12 Million Passenger Airport

Profile results for this airport size show new debt added as follows:

| |
|--------------------------|
| 1977-80 - \$ 25 million |
| 1981-85 - \$ 38 million |
| 1986-90 - \$ 43 million |
| Total \$106 million |

A large capability for further debt financing remains in each time period. The airport in our sample which has traffic comparable with this airport is Denver. Its estimated investment need for the 1977-1990 period is \$137 million, well within its reach if its profile follows that shown here.

4. Financing Capability vs Investment Need, 16 Million Passenger Airport

Profile results for this airport size show new debt added as follows:

| | |
|-----------|----------------------|
| 1977-80 - | \$ 35 million |
| 1981-85 - | \$ 50 million |
| 1986-90 - | <u>\$ 57 million</u> |
| Total | \$142 million |

A large capability for further debt financing remains in each time period. This airport size can finance up to an additional \$115 million in 1980 or \$160 million in 1985.

San Francisco is the only airport in our sample comparable in size to this size airport. Estimated investment need for San Francisco during the 1977-90 period is \$43 million, well within its reach if it follows the profile shown here.

5. General Conclusions

This analysis suggests that with a few exceptions for special circumstances, airports with over 4 million passengers have a strong capability to finance a substantial proportion of their investment needs for 1981-1990 as estimated in this report. This applies to existing facilities only and does not apply to any estimated investment for new airports in this category. It should be noted that if these airports had not received substantial amounts of ADAP funds in the past, their future financing capability would not be as great -- net revenue would be pledged to additional interest and amortization. None of the findings and conclusions in this report should be read to mean that airports of this size can finance 100% of their investment needs. Resources, needs and circumstances vary and a general analysis can only pretend to have provided a thoughtful overview. Finally, no statement in this report is intended to present a value judgment as to whether airports of this size should not receive ADAP funds whatever their self-financing capability may be.

Based on the discussion in Section III it is necessary to recall that the regressions used as a basis for the financial profiles are not precise estimates of financial results. From that discussion we can infer that the regressions will underestimate financial capability for about half of the airports in this group; overestimate financing capability by a small amount for about one-third of the airports in this group; and overestimate financing capability by a greater amount for the remainder of the airports in this group. Assume, for example, that the 1976 "Balance" estimated for the 4 million passenger airport is 50% high, that instead of \$1.25 million it is \$625,000. That balance of \$625,000 would be sufficient to support issuance of a 25-year bond of approximately \$7.0 million

at 7% annual interest and requiring 1.25 times debt service coverage (1.25 times amortization of \$280,000 and interest of \$245,000 = 1.25 (525,000) = \$656,250). This is very close to the profile traced by the regression equations which shows a \$8.6 million debt addition by 1980 for an airport with 4 million passengers in 1976. Because of the large "Balances" remaining in each of the profiles, even if they are 50% high, enough leeway remains to suggest that the development needed could be self-financed in "normal" cases. (We say "normal" because the Phoenix case appears quite unusual; its estimate of new capital required is extremely high when compared to other airports of its size).

Even though the financial profiles contain considerable leeway for errors in the estimates there is still the possibility that some airports in this group would be unable to finance their development with airport-generated funds unless airport management were able to raise its rates and charges further or tap now unusable revenue sources. Airport management has little, if any, unilateral control over its structure and level of rates and charges. Revenues from all major sources are established in leases and contracts for specified periods of time. As leases and contracts expire an opportunity is presented to raise rates and charges. For concession contracts, the extent of the opportunity depends on market forces. Concessionnaires bid on concession contracts and airport management is not in a position to demand any specific level of revenue. Leases and contracts with airlines are negotiated between airport management and airline representatives. Airport management establishes a fee level for airlines below which it would be fiscally imprudent to go and the airlines have in mind a maximum fee level beyond which it would be fiscally imprudent for them to go. At large airports these fee "parameters" are arrived at by both sides more through a thorough examination of financial records and estimates of financial capability than by intuition or any simple sense of "horse-trading".

Despite the constraints on unilateral establishment of fees and charges by airport management, the financial data base used for this report shows all airports in the over 4 million passengers category were, in 1976, earning income over and above their full accounting costs of operation including debt service.

Should circumstances develop that would impede the ability of these airports to continue this record of financial performance within the traditional ways of establishing fees and charges there is another direct revenue source that could be made available: the passenger "head tax". A number of U.S. airports used this revenue source before the U.S. Congress barred its use in 1973. The "head-tax" is widely-used at non-U.S. airports. This report presents no arguments as to whether the ban on use of the head-tax should be lifted. However it is useful to know what effect use of such a charge at various levels might have on the financing capability of large airports. If, for example, airports were permitted to levy a \$1.00 head-tax on each enplaning passenger and if the administrative cost of collecting the head-tax was 10%, it would have the following effect on the 1976 "Balance" figures in Table 19:

TABLE 19A
EFFECT OF \$1.00 "HEAD-TAX"

| <u>Airport Size</u> | 1976 "Balance" <u>From Table 19</u> (\$000) | Balance With Head-Tax* (\$000) | <u>% Change</u> |
|------------------------|---|--------------------------------------|-----------------|
| 4 million total pass. | 1,251 | 3,051 | +144 |
| 8 million total pass. | 3,884 | 7,484 | + 93 |
| 12 million total pass. | 6,517 | 11,917 | + 83 |
| 16 million total pass. | 9,150 | 16,350 | + 79 |

*Computed based on assumption of \$0.90 per enplanement flowing direct to "Balance" and enplanements equal one-half of total passengers.

Clearly, a \$1.00 "head-tax" vastly expands the financing capability of airports in this category.

C. Airports With 1 Million to 4 Million Passengers

Four financial profiles will be traced with each beginning in 1976. The profiles will be for airports which had the following total passengers in the beginning period:

- 1.0 million
- 1.5 million
- 2.0 million
- 2.5 million

The tracings are limited to the net operating revenue figure as good regressions for the other elements were not obtained.

TABLE 20
Tracing of Financial Profiles
Net Operating Revenue Only

| <u>Airport Size 1976</u> | 1976 Profile (\$000) | 1980 Profile (\$000) | 1985 Profile (\$000) | 1990 Profile (\$000) |
|------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| 1.0 million | 331 | 453 | 627 | 826 |
| 1.5 million | 586 | 769 | 1,031 | 1,328 |
| 2.0 million | 841 | 1,085 | 1,434 | 1,831 |
| <u>2.5 million</u> | <u>1,096</u> | <u>1,400</u> | <u>1,837</u> | <u>2,333</u> |

The regression equations developed for net income and amortization for airports in this group were not reliable enough for definitive analysis against net operating revenue. However, some rough analysis can be undertaken based on a few assumptions about annual interest and amortization. If we assume that there are no non-operating revenues, then the net operating revenue figure is the amount available for interest and amortization. Excluding the apparently unusual cases of Indianapolis and Nashville which showed very high amounts for amortization, the average amortization for the airports remaining in the sample in Section III is \$302,000 in 1976 (computed from Table 10 in Section III). Interest payments may be more than or less than amortization in a given year but for rough calculation purposes it would not be unreasonable to assume interest equals amortization. If, for 1976, an average amount of \$604,000 for interest and amortization is deducted from net operating revenue it can be seen that an airport in this category must have a passenger volume of about 1.6 million to cover these costs from net operating revenues. This suggests that an airport needed more than 1.6 million passengers in 1976 to have any capability for financing additional development.

Investment needs for the airports in the sample of airports with 1-4 million passengers have been estimated and are shown in the following Table.

TABLE 21

Estimated Investment Needs
13 Sample Airports With
1-4 Million Passengers

| Airport | Estimated Investment (\$1976) | | |
|------------------|-------------------------------|--------------------|------------------|
| | 1977-80 (\$000) | 1981-90 (\$000) | Total (\$000) |
| Tucson | 37,049 | 14,485 | 51,534 |
| West Palm | 27,319 | 3,532 | 30,851 |
| Indianapolis | 65,489 | 10,473 | 75,962 |
| Louisville | 220,596 | 11,953 | 232,549 |
| Balti/Wash Int'l | 24,007 | 14,657 | 38,664 |
| Omaha | 16,419 | 4,890 | 21,314 |
| Albuquerque | 14,756 | 4,873 | 19,629 |
| Reno | 58,794 | 51,332 | 110,126 |
| Albany (NY) | 2,710 | 2,920 | 5,630 |
| Rochester | 5,436 | 5,857 | 11,293 |
| Columbus | 228,376 | 62,410 | 290,786 |
| Nashville | 1,896 | 5,367 | 12,263 |
| Salt Lake City | 37,014 | 15,116 | 52,130 |
| TOTALS | 744,861 | 207,865 | 952,726 |

Most of these airports were in the 1-2 million passenger range in 1976. Based on the rough calculations above, none of these airports would have much capability for future financing although in actuality some did and some didn't. The range of estimated investment needs calls for airports in this group to

take on from \$5.6 million to \$290 million in new development or from \$420,000 to \$22 million in additional annual interest plus amortization. It is clear that some of these airports will be able to take on this additional financing while others will not.

For the 1981-1990 period, estimated investment needed for the sample airports is:

- Total - \$745 million
- ADAP ELIGIBLE - \$521 million

It is suggested that this group of airports would have difficulty in financing more than 25% - 30% of the ADAP eligible needs or more than 20% of the total estimated needs. These percentages are low particularly because of the very large investment estimates for Louisville, Reno and Columbus. These percentages could rise to better than 50% and 40% if those three airports are not considered.

A "head-tax" of \$1.00 per enplanement would have a significant effect on the financial profile for airports in this category. The 1976 net operating revenues in Table 20 would change as follows:

TABLE 21A

Effect of "Head-Tax"
On Financial Profile

| <u>Airport Size</u> | <u>Net Op. Rev. From Table 20 (-\$000)</u> | <u>Net Op. Rev. With Head-Tax* (-\$000)</u> | <u>% Change</u> |
|-------------------------|--|---|-----------------|
| 1 million total pass. | 331 | 781 | +136 |
| 1.5 million total pass. | 586 | 1,261 | +115 |
| 2.0 million total pass. | 841 | 1,741 | +107 |
| 2.5 million total pass. | 1,096 | 2,221 | +103 |

*Computed based on assumption that \$0.90 of tax flows direct to net operating revenue and that enplanements equal one-half of total passengers.

The addition of a \$1.00 head-tax would thus enable airports in this group to have additional financing capability beginning at the one million passenger level.

D. Airports With 300,000 to 1 Million Passengers

Although it might appear from the net income data in Table 11 that airports in this group are in about the same financial condition as those in the 1 to 4 million group, such is not the case. More than half of the airports in this category in the data base show significant net income only because of local taxes received or other cash contributions from local government. Lansing,

for example, shows net income of \$1,033,000 in 1976 but it received \$1,001,305 in taxes and government cash contributions. Ft. Wayne, Indiana is an even more extreme case showing net income of \$37,417 only after receiving \$997,423 in tax revenue.

While certain individual airports in this group (especially those with industrial parks) show some small capability for self financing, such capability for the group as a whole appears non-existent.

E. Airports With Less Than 300,000 Passengers

These airports have difficulty earning net operating revenue, especially at passenger traffic volumes of 150,000 or less. As with airports in the 300,000 to 1 million category, net income is usually the result of tax revenue or government cash contributions rather than from operations. There is little, if any, capability for self-financing in this airport group.

F. General Aviation Airports

The analysis of the data base for these airports did not produce insights sufficient to definitively judge their self-financing capability. An examination of average net operating revenue and average net income for these airports suggests that they often do not earn revenue sufficient to cover operating expenses. The self-financing capability of publicly-owned general aviation airports appears insignificant.

It is perhaps at the general aviation airports where the greatest opportunity exists to increase airport revenues. Many general aviation airports do not charge landing fees and have only minimal charges for use of other facilities. Many of these airports, while publicly-owned, are operated and managed by fixed-base operators who charge for their services and remit a portion of their revenues to the airport owner. While landing fees are known to be unpopular among owners of small general aviation aircraft, many general aviation airports would benefit significantly from even a nominal landing fee for itinerant operations. The Table below shows the additional revenue that a 50-cent landing fee for itinerant operations would have produced in 1976 at a small sample of airports in the FAA-provided data base:

TABLE 22

| <u>Airport</u> | <u>Revenues From 50-Cent Landing Fee</u> | <u>Percentage b, Which Landing Fee Re. Would Increase Operating Rev.</u> |
|-----------------------|--|--|
| Tulsa Riverside | \$36,500 | 36% |
| Overland Park, Kansas | 20,750 | 23% |
| Las Cruces, N.Mex | 7,250 | 50% |
| Tremont, Ohio | 4,000 | 239% |
| MCMinnville, Oregon | 4,000 | 11% |
| Provo, Utah | 8,000 | 40% |

G. Conclusions: Investment Needs vs Self-Financing Capability; U.S. Airports

The preceding analysis and discussion presented insights into the financial profiles of airports within various sized groups and categories. The most reliable financial profiles were those presented for airports with over 4 million annual passengers. The analysis of these profiles suggested that airports in that group are capable on their own of financing their capital development thru 1990 with the exception of Phoenix. This conclusion is based on use of the capital investment estimates used in this report which were derived from the NASP. The analysis in this report did not address the issue of investment for new airports or unforeseen investment for existing airports.

The analysis of financial profiles of airports with 1-4 million annual passengers is not as reliable a predictor of financing capability as was found for the larger airports. However, the rough analysis that was undertaken suggested it can be said that airports in this category with more than 1.6 million annual passengers have self-financing capability which then increases with the level of passenger activity. On a case-by-case basis there are some notable exceptions. Anchorage, Alaska, for example, shows 1976 net income of \$5.4 million. The airport did not show its amortization for 1976 but it showed \$1.9 million for depreciation. Using depreciation as a surrogate for amortization the airport would have about \$3.5 million available for financing new capital should it choose to do so. Louisville, Kentucky is another example with 1976 net income of \$1.5 million and amortization of \$750,000 leaving it \$750,000 for new financing should it choose to do so.

For airports in the 1-4 million passenger category a case-by-case analysis would be necessary to determine each airport's financing capability. For airports with less than 1 million passengers there is little self-financing capability overall but a case-by-case examination would uncover a number of exceptions to the general rule (White Plains, New York, for example, has been a financially self-sustaining operation for many years).

Table 23 summarizes estimated capital investment and the percentage of that investment which this report suggests might be self-financed by the airports. The percentages given for air carrier airports below 1 million passengers and the general aviation airports are quite judgmental.

TABLE 23
U.S. Airport Investment Needs
vs
Self-Financing Capability
FY 1981-1990

| Airport Group | Estimated Investment Needed | | | Percentage of Total Financeable By Airport |
|-------------------|-----------------------------|--------------------------|-------------------|--|
| | ADAP Eligible (\$million) | Non-Eligible (\$million) | Total (\$million) | |
| Over 4 million | 2,199 | 943 | 3,142 | 90% or more |
| 1-4 million | 1,483 | 494 | 1,977 | 25% or more |
| Sub-total | 3,682 | 1,437 | 5,119 | 65% or more |
| 300,000-1 million | 853 | 214 | 1,067 | 15% or more |
| Less than 300,000 | 1,823 | 343 | 2,145 | 10% |
| General Aviation | 4,502 | 502 | 5,004 | 10% |
| Totals | 10,860 | 2,475 | 13,335 | 32% |

APPENDIX

AIRPORT FINANCIAL STATEMENT

This report is authorized by the Federal Aviation Act of 1958, as amended, sections 303 (a)(7), 311, 312(a); and the Airport and Airways Development Act of 1970, as amended, sections 4, 12(a)(c). While you are not required to respond, your cooperation is needed to make the results of this survey comprehensive, accurate and timely.

Airport Name _____ Prepared By _____

Address _____ Phone No. _____

I. INCOME AND EXPENSE STATEMENT

For 12 months ending _____

A. OPERATING REVENUES

| | |
|---|----------|
| 1. Airfield Area Revenues | |
| 1.1 Air Carrier Landing Fees | \$ _____ |
| 1.2 Other Landing Fees | _____ |
| 1.3 Fuel and Oil Fees | _____ |
| 1.4 Airline Catering Fees | _____ |
| 1.5 Aircraft Parking Fees | _____ |
| 1.6 Air National Guard Fees | _____ |
| 1.7 Total Airfield Area Revenues (Total 1.1 through 1.6) | \$ _____ |
| 2. Hangar and Building Area Revenues | |
| 2.1 Hangar Rental Revenue | \$ _____ |
| 2.2 Commercial/Industrial Lease Revenues | _____ |
| 2.3 Ground Site Leases Income | _____ |
| 2.4 Government Leases Revenue | _____ |
| 2.5 Fixed Base Operation Airport Revenues | _____ |
| 2.6 Total Hangar and Building Area Revenues (Total 2.1 through 2.5) | \$ _____ |
| 3. Terminal Area Revenues | |
| 3.1 Airline Rental Revenues | \$ _____ |
| 3.2 Government Leases Income | _____ |
| 3.3 Miscellaneous Rental Income | _____ |
| 3.4 Total Terminal Area Revenue (Total 3.1 through 3.3) | \$ _____ |
| 4. Systems and Services Revenues | |
| 4.1 Utility Fees Received | \$ _____ |
| 4.2 Services Received in Lieu | _____ |
| 4.3 Miscellaneous Service Fees | _____ |
| 4.4 Total Systems and Services Revenues (Total 4.1, 4.2, and 4.3) | \$ _____ |

| | |
|--|----------|
| 5. Concession Revenues | |
| 5.1 Airport Parking Incomes | \$ _____ |
| 5.2 Auto Rental Fees | _____ |
| 5.3 Restaurant and Lounge Fees | _____ |
| 5.4 Shop Lease Revenues | _____ |
| 5.5 Advertising Revenues | _____ |
| 5.6 Ground Transportation Revenues | _____ |
| 5.7 Flight Insurance Income | _____ |
| 5.8 Hotel/Motel Revenues | _____ |
| 5.9 Miscellaneous Revenues | _____ |
| 5.10 Total Concession Revenues (Total 5.1 through 5.9) | \$ _____ |
| 6. Total Operating Revenues (Total 1.7 + 2.6 + 3.4 + 4.4 + 5.10) | \$ _____ |
| B. OPERATING EXPENSES | |
| 1. Airfield Area Operating Expenses | \$ _____ |
| 1a. Expenses Due Solely to FAR Part 107 | _____ |
| 1b. Expenses Due Solely to FAR Part 139 | _____ |
| 2. Hangar and Building Area Expenses | _____ |
| 3. Terminal Area Expenses | _____ |
| 4. General and Administrative Expenses | _____ |
| 5. Total Operating Expenses (Total 1 through 4) | \$ _____ |
| C. OPERATING PROFIT (A6 - B5) | \$ _____ |
| D. NON-OPERATING REVENUES | |
| 1. Interest Received on Investments | \$ _____ |
| 2. Local Taxes Received | _____ |
| 3. Contributions from Government | _____ |
| 4. Miscellaneous Revenue | _____ |
| 5. Total Non-Operating Revenues (Total 1 through 4) | \$ _____ |
| E. NON-OPERATING EXPENSES | |
| 1. Interest Paid | \$ _____ |
| 2. Contributions to Government | _____ |
| 3. Miscellaneous Expenses | _____ |
| 4. Total Non-Operating Expenses (Total 1, 2, and 3) | \$ _____ |
| F. OPERATING INCOME (C + D5 - E4) | \$ _____ |
| G. DEPRECIATION | |
| 1. Total Land Assets (at Cost) | \$ _____ |
| 2a. Total Buildings/Equipment Assets (Cost) | _____ |
| 2b. Total Buildings/Equipment Assets (Depreciated) | _____ |

3. Method of Depreciation: () Straight Line,
Double Declining Balance, () Sum of Years
Digits, () Other _____
4. Depreciation Buildings/Equipment (this accounting
period) \$ _____
- H. NET INCOME (F - G4) \$ _____

II. SOURCES AND USES OF FUNDS STATEMENT

- A. SOURCES OF FUNDS
1. Operating Income
 2. Local Taxes
 3. General Fund
 4. Revenue Bond
 5. General Obligation Bond
 6. State Grant-in-Aid
 7. Federal Grant-in-Aid
 8. Working Capital
 9. Miscellaneous
10. Total Sources of Funds (Total 1 through 9) \$ _____
- B. USE OF FUNDS
1. Capital Improvements
 2. Interest
 3. Bond Principal
 4. Miscellaneous
 5. Increase (Decrease) in Working Capital
6. Total Use of Funds (Total 1 through 5) \$ _____

III. OTHER FINANCIAL DATA

- A. TOTAL SHORT TERM DEBT (due next 12 months) \$ _____
- B. TOTAL LONG TERM DEBT
1. Revenue Bond Debt \$ _____
2. G.O. Bond Debt \$ _____
- C. FEDERAL GRANTS (preceding five fiscal year total)
FY 19 \$ _____
FY 19 \$ _____
FY 19 \$ _____
FY 19 \$ _____
FY 19 \$ _____
- D. STATE GRANTS (preceding five fiscal year total) \$ _____
FY 19 \$ _____
- E. OTHER GRANTS (preceding five fiscal year total) \$ _____
FY 19 \$ _____ Agency(s)
FY 19 \$ _____ Agency(s)
- F. INSTITUTIONAL ENVIRONMENT OF AIRPORT OPERATION
1. Type of Agency:
____ State Agency _____ Municipal Agency
____ County Agency _____ Public Authority
2. Does the operator operate other airports? Yes _____ No _____
3. If 2 is Yes, list other airports _____
4. Is the operator responsible for non-airport operations? Yes _____ No _____
5. If 4 is Yes, what operations?
____ Highway _____ Transit _____ Marine
____ Other Transportation _____
____ Other Non-Transportation _____
6. If 2 or 5 is Yes,
a. Total revenues of the agency/authority \$ _____
b. Total outstanding revenue bond debt \$ _____
- G. AIRPORT ACCOUNTING SYSTEM
1. Does the airport operator maintain a set of accounts for this airport separate from the accounts of the parent jurisdiction? Yes _____ No _____
2. If 1 is Yes, are the accounts generally compatible with the data requested in this survey? Yes _____ No _____
3. Are depreciation accounts kept for the airport? Yes _____ No _____

INVESTMENT NEEDS (\$000)

LARGE HUB AIRPORTS

Eligible-Per 1978-87 NASP

Ineligible Estimate

| Location-Airport | 5 | 10 | Sub-Total | Sub-Totals | 5 | 10 | Total | Total's NASP % Ineligible Estimate |
|---|----------------|----------------|------------------|----------------|----------------|----------------|------------------|---|
| Phoenix - Sky Harbor | 29,070 | 72,735 | 101,805 | 2,907 | 17,586 | 20,493 | 122,298 | |
| Los Angeles - Los Angeles Int'l | 166,054 | 0 | 166,054 | 33,480 | 0 | 33,480 | 199,534 | |
| San Francisco-San Francisco Int'l | 20,074 | 5,632 | 25,706 | 2,007 | 563 | 2,570 | 28,276 | 1/ |
| Denver-Stapleton Int'l | 44,870 | 30,000 | 74,870 | 4,487 | 33,000 | 37,487 | 112,357 | |
| Miami - Miami Int'l | 43,700 | 21,500 | 65,200 | 5,720 | 20,150 | 25,870 | 91,070 | |
| Tampa - Tampa Int'l | 11,432 | 6,239 | 17,671 | 1,143 | 624 | 1,767 | 19,438 | 1/ |
| Atlanta - Hartsfield Int'l | 235,605 | 142,810 | 378,415 | 35,561 | 14,281 | 49,842 | 428,257 | |
| New Orleans - New Orleans Int'l | 24,941 | 0 | 24,941 | 2,494 | 0 | 2,494 | 27,435 | 1/ |
| Detroit - Detroit Metropolitan - Wayne County | 26,275 | 37,370 | 63,645 | 5,628 | 5,981 | 11,609 | 75,254 | |
| Kansas City - Kansas City Int'l | 11,135 | 15,705 | 26,840 | 1,114 | 1,571 | 2,685 | 29,525 | 1/ |
| St. Louis - Lambert-St. Louis | 21,872 | 7,684 | 29,556 | 3,687 | 5,981 | 9,668 | 39,224 | |
| Las Vegas - McCarron Int'l | 47,862 | 0 | 47,862 | 30,886 | 0 | 30,886 | 78,748 | |
| Cleveland - Cleveland Hopkins | 45,500 | 49,500 | 95,000 | 19,550 | 27,450 | 47,000 | 142,000 | |
| Philadelphia - Philadelphia Int'l | 26,068 | 31,000 | 57,068 | 13,429 | 16,300 | 29,729 | 86,797 | |
| Pittsburgh- Greater Pittsburgh | 23,604 | 1,556 | 25,160 | 2,360 | 156 | 2,516 | 27,676 | 1/ |
| Dallas - Dallas/Fort Worth | 45,437 | 8,602 | 54,039 | 4,544 | 860 | 5,404 | 59,443 | 1/ |
| Houston - Houston Int'l | 22,200 | 25,100 | 47,300 | 14,220 | 2,510 | 16,730 | 64,030 | |
| Seattle - Seattle-Tacoma Int'l | 18,545 | 75,103 | 93,648 | 2,100 | 69,493 | 71,593 | 165,241 | |
| TOTALS | 864,244 | 530,536 | 1,394,780 | 185,317 | 216,506 | 401,823 | 1,796,603 | |
| % of Eligible Items | --- | --- | --- | 21.4 | 40.8 | 28.8 | --- | |
| 1/ Totals | 136,623 | 37,734 | 174,357 | 13,662 | 3,774 | 17,436 | 191,793 | |
| % Eligible Items | --- | --- | --- | 10.0 | 10.0 | 10.0 | --- | |
| Other than 1/ Totals | 727,621 | 492,802 | 1,220,423 | 171,655 | 212,732 | 384,387 | 1,604,810 | |
| % other than 1/ Eligible Items | --- | --- | --- | 23.6 | 43.2 | 31.5 | --- | |

1/ No Eligible Terminal Building Investment

INVESTMENT NEEDS (\$000)

| MEDIUM HUB AIRPORTS | INVESTMENT NEEDS (\$000) | | | Eligible-Per 1978-87 NASP | | | Ineligible Estimate | | | Total's NASP 6 Ineligible Estimate |
|---------------------------------------|--------------------------|----------------|----------------|---------------------------|---------------|----------------|---------------------|----|-------|---|
| | 5 | 10 | Sub- Total | 5 | 10 | Sub-Totals | 5 | 10 | Total | |
| Anchorage - Anchorage Int'l | 49,430 | 2,268 | 51,698 | 10,172 | 113 | 10,285 | 61,983 | | | |
| Tucson - Tucson Int'l | 17,013 | 10,329 | 27,342 | 1,165 | 1,924 | 3,089 | 30,431 | | | |
| West Palm - Palm Beach Int'l | 4,148 | 10,518 | 14,666 | 1,910 | 8,030 | 9,940 | 24,606 | | | |
| Indianapolis - Indianapolis Int'l | 12,300 | 24,400 | 36,700 | 1,365 | 3,720 | 5,085 | 41,785 | | | |
| Louisville - Standiford Field | 14,038 | 91,659 | 105,697 | 702 | 4,583 | 5,285 | 110,982 | 1/ | | |
| Baltimore - Baltimore-Wash Int'l | 17,214 | 4,554 | 21,768 | 5,861 | 2,728 | 8,589 | 30,357 | | | |
| Omaha - Eppley Airfield | 5,749 | 5,196 | 10,945 | 287 | 260 | 547 | 11,492 | 1/ | | |
| Reno - Reno Int'l | 60,289 | 4,885 | 65,174 | 6,764 | 3,757 | 10,521 | 75,693 | | | |
| Albuquerque - Albuquerque Int'l | 5,722 | 4,478 | 10,200 | 911 | 1,474 | 2,385 | 12,585 | | | |
| Albany - Albany County | 3,430 | 0 | 3,430 | 172 | 0 | 172 | 3,603 | 1/ | | |
| Rochester - Rochester-Monroe County | 6,880 | 0 | 6,880 | 344 | 0 | 344 | 7,224 | 1/ | | |
| Charlotte - Douglas Municipal | 48,929 | 11,471 | 60,400 | 37,696 | 574 | 38,270 | 98,670 | | | |
| Columbus - Port Columbus Int'l | 73,300 | 74,580 | 147,880 | 28,665 | 28,729 | 57,394 | 205,274 | | | |
| Nashville - Nashville Metropolitan | 6,304 | 838 | 7,142 | 315 | 42 | 357 | 7,499 | 1/ | | |
| Salt Lake City - Salt Lake City Int'l | 17,755 | 10,057 | 27,812 | 888 | 6,484 | 7,372 | 35,184 | | | |
| Roanoke - Roanoke Mun-Woodrun Field | 4,223 | 360 | 4,583 | 211 | 18 | 229 | 4,812 | 1/ | | |
| TOTALS | 346,724 | 255,593 | 602,317 | 97,428 | 62,436 | 159,864 | 762,182 | | | |
| # Eligible Items | --- | --- | --- | 28.1 | 24.4 | 26.5 | --- | | | |
| 1/ Totals | 40,624 | 98,053 | 138,677 | 2,031 | 4,903 | 6,934 | 145,612 | | | |
| 1/ Eligible Items | --- | --- | --- | 5.0 | 5.0 | 5.0 | --- | | | |
| Other than 1/ Totals | 306,100 | 157,540 | 463,640 | 95,397 | 57,533 | 152,930 | 616,570 | | | |
| X other than 1/ Eligible Items | --- | --- | --- | 31.2 | 36.4 | 33.0 | --- | | | |

1/ No Eligible Terminal Building Investment

INVESTMENT NEEDS (\$000)

SMALL HUB AIRPORTS

Eligible-Per 1978-87 NASP

Ineligible Estimate

| Location - Airport | INVESTMENT NEEDS (\$000) | | | Eligible-Per 1978-87 NASP | | | Ineligible Estimate | | | Total's NASP & Ineligible Estimate |
|--|--------------------------|---------------|----------------|---------------------------|---------------|-----------------------|---------------------|----|--|---|
| | 5 | 10 | Sub- Total | 5 | 10 | Sub-Totals 5 10 | Total | | | |
| Montgomery - Dannelly Field | 3,335 | 1,961 | 5,296 | 300 | 219 | 519 | 5,815 | | | |
| Little Rock - Little Rock Municipal | 11,263 | 0 | 11,263 | 563 | 0 | 563 | 11,826 | 1/ | | |
| Fresno - Fresno Air Terminal | 9,432 | 10,574 | 20,006 | 6,934 | 9,799 | 16,713 | 36,719 | | | |
| Monterey - Monterey Peninsula | 6,174 | 2,787 | 8,961 | 1,444 | 327 | 1,771 | 10,732 | | | |
| Ontario - Ontario Int'l | 38,961 | 2,302 | 41,263 | 5,136 | 2,203 | 7,339 | 48,602 | | | |
| *Sacramento - Sacramento Metro | 16,117 | 9,205 | 25,322 | 3,731 | 3,730 | 7,461 | 32,783 | | | |
| Colorado Springs - Colorado Spr Mu | 20,315 | 717 | 21,032 | 1,016 | 36 | 1,052 | 22,084 | 1/ | | |
| Columbus - Columbus Metro | 1,656 | 0 | 1,656 | 83 | 0 | 83 | 1,739 | 1/ | | |
| Boise - Boise Air Terminal | 4,066 | 4,177 | 8,243 | 828 | 1,459 | 2,287 | 10,530 | | | |
| Fort Wayne - Baer Field | 23,190 | 15,000 | 38,190 | 1,410 | 3,875 | 5,285 | 43,475 | | | |
| Des Moines - Des Moines Mun. | 6,959 | 0 | 6,959 | 348 | 0 | 348 | 7,307 | 1/ | | |
| Wichita - Wichita Mid-Continent | 14,237 | 3,643 | 17,880 | 1,915 | 182 | 2,097 | 19,977 | | | |
| Baton Rouge - Ryan | 8,370 | 1,333 | 9,703 | 3,227 | 138 | 3,365 | 13,068 | | | |
| Portland, Me - Portland Int'l Jetport | 2,928 | 200 | 3,128 | 1,146 | 10 | 1,156 | 4,284 | | | |
| Lansing - Capital City Airport | 8,025 | 8,560 | 16,585 | 1,151 | 1,678 | 2,829 | 19,414 | | | |
| Jackson - Allen C. Thompson Fld | 5,539 | 5,689 | 11,228 | 464 | 2,159 | 2,623 | 13,851 | | | |
| Billings - Billings Logan Int'l | 7,298 | 2,223 | 9,521 | 1,365 | 1,174 | 2,539 | 12,060 | | | |
| Great Falls - Great Falls Int'l | 4,486 | 0 | 4,486 | 287 | 0 | 287 | 4,773 | | | |
| Toledo - Toledo Express | 8,205 | 6,425 | 14,630 | 785 | 571 | 1,356 | 15,986 | | | |
| Eugene - Mahlon Sweet Field | 2,705 | 3,292 | 5,997 | 573 | 790 | 1,363 | 7,360 | | | |
| Charleston - Charleston AFB/Int'l | 17,760 | 13,480 | 31,240 | 12,138 | 10,674 | 22,812 | 54,052 | | | |
| Sioux Falls - Joe Foss Field | 6,031 | 2,190 | 8,221 | 302 | 1,360 | 1,662 | 9,883 | | | |
| Charleston - Kanawha County | 1,147 | 0 | 1,147 | 57 | 0 | 57 | 1,204 | 1/ | | |
| TOTALS | 228,199 | 93,758 | 321,957 | 45,203 | 40,364 | 85,567 | 407,524 | | | |
| % Eligible Items | --- | --- | --- | 19.8 | 43.1 | 26.6 | --- | | | |
| 1/ Totals | 41,340 | 717 | 42,057 | 2,067 | 36 | 2,103 | 44,160 | | | |
| % Eligible Items | --- | --- | --- | 5.0 | 5.0 | 5.0 | --- | | | |
| Other than 1/ Totals | 186,859 | 93,041 | 279,900 | 43,136 | 40,328 | 81,464 | 363,364 | | | |
| % Other than 1/ Eligible Items | --- | --- | --- | 23.1 | 43.3 | 29.8 | --- | | | |
| 1/ No Eligible Terminal Building Investment | --- | --- | --- | --- | --- | --- | --- | | | |
| A Median Val. In NASP | --- | --- | --- | --- | --- | --- | --- | | | |

No Eligible Terminal Building Investment
A Median Val. In NASP

INVESTMENT NEED - (\$000)

| Location - Airport | Eligible-Per 1978-87 NASP | | | Ineligible Estimate | | | Total's NASP & Ineligible Estimate |
|---|---------------------------|---------------|----------------|---------------------|--------------|---------------|------------------------------------|
| | 5 | 10 | Sub-Total | 5 | 10 | Total | |
| Tuscaloosa - Tuscaloosa Municipal | 1,599 | 269 | 1,868 | 80 | 13 | 93 | 1,961 1/ |
| Chico - Chico Municipal | 1,295 | 327 | 1,622 | 65 | 16 | 81 | 1,703 1/ |
| Modesto - Modesto City-County | 1,246 | 435 | 1,681 | 600 | 22 | 622 | 2,303 |
| Visalia - Visalia Municipal | 3,626 | 1,433 | 5,059 | 181 | 72 | 253 | 5,312 1/ |
| New Haven - Tweed-New Haven | 1,854 | 2,820 | 4,674 | 93 | 766 | 859 | 5,533 |
| Mt. Vernon - Mt. Vernon-Outland | 2,650 | 800 | 3,450 | 258 | 165 | 423 | 3,873 |
| Owensboro - Owensboro-Darless County | 8,979 | 660 | 9,639 | 449 | 33 | 482 | 10,121 1/ |
| Paducah - Barkley Field | 1,629 | 2,304 | 3,933 | 81 | 115 | 196 | 4,129 1/ |
| Hyannis Mass - Barnstable Mun. | 615 | 755 | 1,370 | 31 | 38 | 69 | 1,439 1/ |
| Lebanon - Lebanon Regional | 2,565 | 545 | 3,110 | 1,164 | 27 | 1,191 | 4,301 |
| Kinston NC - Stallings Field | 2,522 | 174 | 2,696 | 126 | 9 | 135 | 2,831 1/ |
| Wilmington NC - New Hanover County | 7,519 | 2,097 | 9,616 | 3,001 | 851 | 3,852 | 13,468 |
| Bismarck - Bismarck Municipal | 7,237 | 8,062 | 15,299 | 1,924 | 403 | 2,327 | 17,626 |
| Lawton - Lawton Municipal | 3,629 | 486 | 4,115 | 181 | 88 | 269 | 4,384 |
| Ponca City - Ponca City Municipal | 670 | 0 | 670 | 34 | 0 | 34 | 704 1/ |
| North Myrtle Beach SC - Myrtle Beach ARB/C.V. Jetport | 2,620 | 857 | 3,477 | 1,006 | 1,043 | 2,049 | 5,526 |
| Jackson TN - McKellar Field | 5,053 | 690 | 5,743 | 5,878 | 35 | 5,913 | 11,656 |
| *South Burlington - Burlington Int'l | 2,379 | 763 | 3,142 | 569 | 38 | 607 | 3,749 |
| Charlottesville VA - Charlottesville-Albermarke | 1,644 | 922 | 2,566 | 270 | 46 | 316 | 2,882 |
| Pullman - Pullman-Moscow Regional | 444 | 137 | 581 | 22 | 7 | 29 | 610 1/ |
| WallaWalla - WallaWalla City-County | 347 | 315 | 662 | 17 | 16 | 33 | 695 1/ |
| Yakima - Yakima Air Terminal | 2,940 | 1,409 | 4,349 | 147 | 446 | 593 | 4,942 |
| Huntington W.VA - Tri-State Airport | 410 | 2,000 | 2,410 | 21 | 100 | 121 | 2,531 1/ |
| Lewisburg W.VA - Greenbrier Valley | 5,000 | 0 | 5,000 | 250 | 0 | 250 | 5,250 1/ |
| EauClaire - EauClaire Municipal | 1,394 | 1,897 | 3,291 | 709 | 657 | 1,366 | 4,657 |
| TOTALS | 69,866 | 30,159 | 100,023 | 17,157 | 5,006 | 22,163 | 122,186 |
| Z Eligible Items | --- | --- | --- | 24,6 | 16,6 | 22,2 | --- |
| 1/ Totals | 27,136 | 8,374 | 35,510 | 1,357 | 419 | 1,776 | 37,286 |
| Z Eligible Items | --- | --- | --- | 5.0 | 5.0 | 5.0 | --- |
| Other than 1/ Totals | 42,730 | 21,785 | 64,513 | 15,800 | 4,587 | 20,387 | 84,900 |
| Z other than 1/ Totals | --- | --- | --- | 37.0 | 21.1 | 31.6 | --- |

1/ No Eligible Terminal Building Investment
*** Small Juh In NASP**

INVESTMENT NEEDS (\$000)

| Location - Airport | LARGE GENERAL AVIATION AIRPORTS | | | Eligible-Per 1978-87 NASP | | | Ineligible Estimate | | | Total's NASP & Ineligible Estimate |
|--|---------------------------------|---------------|----------------|---------------------------|--------------|---------------|---------------------|-------------|-------------|------------------------------------|
| | 5 | 10 | Sub-Total | 5 | 10 | Sub-Totals | 5 | 10 | Total | |
| Hawthorne - Hawthorne Municipal | 16,899 | 274 | 17,173 | | | | | | | |
| Hayward - Hayward Air Terminal | 6,815 | 220 | 7,035 | | | | | | | |
| San Carlos - San Carlos Airport | 6,469 | 307 | 6,776 | | | | | | | |
| Torrance - Torrance Municipal | 906 | 344 | 1,250 | | | | | | | |
| Denver - Jeffco | 7,054 | 1,395 | 8,449 | | | | | | | |
| Denver - Arapahoe County | 3,806 | 4,990 | 8,796 | | | | | | | |
| Danbury - Danbury Municipal | 439 | 958 | 1,397 | | | | | | | |
| *Wilmington - Greater Wilmington | 1,404 | 203 | 1,607 | | | | | | | |
| Olathe - Executive Airport - | | | | | | | | | | |
| Johnson County | 1,859 | 0 | 1,859 | | | | | | | |
| Farmingdale - Republic Airport | 10,840 | 1,065 | 11,905 | | | | | | | |
| Cincinnati - Cincinnati Municipal Lunken Field | 5,116 | 2,074 | 7,190 | | | | | | | |
| Cleveland - Cuyahoga County | 15,790 | 17,190 | 32,980 | | | | | | | |
| Tulsa - Tulsa-Riverside | 14,343 | 289 | 14,632 | | | | | | | |
| Hillsboro - Portland - Hillsboro | 1,975 | 1,815 | 3,810 | | | | | | | |
| Dallas - Redbird Airport | 145 | 258 | 403 | | | | | | | |
| *Houston - W. P. Hobby | 1,840 | 1,130 | 2,970 | | | | | | | |
| Seattle - Boeing Field - King Co. Apt | 10,201 | 650 | 10,851 | | | | | | | |
| TOTALS | 105,901 | 33,182 | 139,083 | 10,590 | 3,318 | 13,908 | 10.0 | 10.0 | 10.0 | 152,991 |
| # Eligible Items | | | | | | | | | | |

* Commuter (but not anymore)

** Small Inh in NASP

1/ No Eligible Terminal Building Investment

INVESTMENT NEEDS (\$000)

| Location - Airport | MEDIUM GENERAL AVIATION AIRPORTS | | | Eligible-Per 1978-87 NASP | | | Ineligible Estimate | | | Total's NASP & Ineligible Estimate |
|--|----------------------------------|-------|-----------|---------------------------|----|------------|---------------------|----|-------|------------------------------------|
| | 5 | 10 | Sub-Total | 5 | 10 | Sub-Totals | 5 | 10 | Total | |
| Bessemer - Bessemer Municipal | 1,101 | 800 | 1,901 | | | | | | | |
| Casa Grande - Casa Grande Mun. | 226 | 35 | 261 | | | | | | | |
| Chandler - Chandler Mun. | 369 | 49 | 418 | | | | | | | |
| Fresno - Fresno-Chandler-Downtown | 1,481 | 277 | 1,758 | | | | | | | |
| Napa - Napa County | 1,033 | 675 | 1,708 | | | | | | | |
| Truckee - Truckee-Tahoe | 3,960 | 984 | 4,944 | | | | | | | |
| Greeley - Weld County Mun. | 1,505 | 670 | 2,175 | | | | | | | |
| St. Petersburg - St. Petersburg - Clearwater Int'l | 1,596 | 52 | 1,648 | | | | | | | |
| Jacksonville - Craig Municipal | 359 | 1,025 | 1,384 | | | | | | | |
| Orlando - Herndon | 1,535 | 600 | 2,135 | | | | | | | |
| Augusta - Daniel Field | 231 | 35 | 266 | | | | | | | |
| Marietta - McCollum | 8,545 | 3,147 | 11,692 | | | | | | | |
| *Elkhart - Elkhart Municipal | 5,950 | 3,110 | 9,060 | | | | | | | |
| An Arbor - An Arbor Municipal | 1,033 | 1,294 | 2,327 | | | | | | | |
| *Battle Creek - W.K. Kellogg Regional | 2,590 | 175 | 2,765 | | | | | | | |
| Las Cruces - Las Cruces-Cranford Mu. | 178 | 131 | 309 | | | | | | | |
| Saratoga Springs - Saratoga County | 1,180 | 1,040 | 2,220 | | | | | | | |
| Fremont - Progress Field | 730 | 640 | 1,370 | | | | | | | |
| McMinnville - McMinnville Mun. | 346 | 452 | 798 | | | | | | | |
| Scappoose - Scappoose Int'l Airport | 780 | 830 | 1,610 | | | | | | | |
| *Latrobe - Latrobe | 219 | 486 | 705 | | | | | | | |
| Reading - Gen. Carl A. Spaatz Field | 658 | 1,381 | 2,039 | | | | | | | |
| Kerryville - Kerryville Municipal | 330 | 175 | 505 | | | | | | | |
| Ogden - Ogden Municipal | 507 | 0 | 507 | | | | | | | |
| Provo - Provo Municipal | 284 | 972 | 1,256 | | | | | | | |

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INVESTMENT NEEDS (\$000)

| LOCATION - AIRPORT | MEDIUM GENERAL AVIATION AIRPORTS | ELIGIBLE-PER 1978-87 NASP | INELIGIBLE ESTIMATE | | | TOTAL'S NASP & INELIGIBLE ESTIMATE |
|---------------------------------|----------------------------------|---------------------------|---------------------|--------|-----------|------------------------------------|
| | | | 5 | 10 | SUB-TOTAL | |
| Kelso - Kelso-Longview | | 699 | 1,876 | 2,575 | | |
| Renton - Renton Municipal | | 88 | 608 | 696 | | |
| Spokane - Felts Field | | 418 | 465 | 883 | | |
| West Bend - West Bend Municipal | | 2,486 | 539 | 3,025 | | |
| TOTALS | | 40,417 | 22,523 | 62,940 | 4,042 | 2,252 |
| Z Eligible Items | | --- | --- | --- | 10.0 | 10.0 |

* Commuter in NASP
1/ No Eligible Terminal Building Investment

INVESTMENT NEEDS (\$000)

SMALL GENERAL AVIATION AIRPORTS

Eligible-Per 1978-87 NASP

Ineligible Estimate

| Location - Airport | 5 | 10 | Sub-Total | 5 | Sub-Totals | 10 | Total | Total's NASP & Ineligible Estimate |
|---|----------|-----------|------------------|----------|-------------------|-----------|--------------|---|
| Monroeville - Monroe County | 529 | 148 | | | | | | |
| Scottsboro, Alabama - NEW | 1,017 | 361 | | | | | | |
| Selma - Selffield | 515 | 80 | | | | | | |
| Sylacauga - Lee Merkle Field | 795 | 52 | | | | | | |
| Palmer - Palmer Municipal | 1,365 | 3,195 | | | | | | |
| Russellville - Russellville Mun. | 0 | 0 | | | | | | |
| Los Banos - Los Banos Mun. | 448 | 15 | | | | | | |
| Mojave - Mojave | 549 | 0 | | | | | | |
| Glenwood, Colo. Springs - NEW | 1,077 | 190 | | | | | | |
| Covington, GA - NEW | 1,505 | 690 | | | | | | |
| Craigmont - Craigmont | 20 | 283 | | | | | | |
| Auburn, Ind - Auburn Dekalo | 1,033 | 819 | | | | | | |
| Wabash - Wabash Municipal | 662 | 1,194 | | | | | | |
| Atwood - Atwood-Rawlins County-City | | | | | | | | |
| CPU | 1,009 | 0 | | | | | | |
| Bowling Green - Bowling Green - Warren County | 282 | 1,051 | | | | | | |
| Frankfort - Capital City | 389 | 972 | | | | | | |
| Springfield - Lebanon Springfield | 31 | 0 | | | | | | |
| *Bar Harbor - Bar Harbor | 1,468 | 1,315 | | | | | | |
| Albert Lea - Albert Lea Municipal | 2,836 | 89 | | | | | | |
| Eveleth - Eveleth-Virginia | 618 | 690 | | | | | | |
| McComb - McComb-Pike County | 1,056 | 0 | | | | | | |
| Lamar - Lamar Municipal | 915 | 0 | | | | | | |
| Forsyth - Tillett Field | 458 | 110 | | | | | | |
| York, Neb. - NEW | 2,431 | 755 | | | | | | |
| *Ogdensburg - Ogdensburg Int'l | 458 | 180 | | | | | | |

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(Cont'd)

INVESTMENT NEEDS (\$000)

| Location - Airport | Eligible-Per 1978-87 NASP | | | Ineligible Estimate | | | Total's NA ^a Ineligible Estimate |
|-------------------------------------|---------------------------|---------------|---------------|---------------------|--------------|--------------|---|
| | 5 | 10 | Sub- Total | Sub-Totals | 5 | 10 | |
| Monroe - Monroe | 412 | 528 | | | | | |
| Dickinson - Dickinson Municipal | 1,451 | 464 | | | | | |
| Sand Springs - William R. Pogue Mu. | 1,026 | 2,537 | | | | | |
| Chambersburg - Chambersburg Mun. | 678 | 433 | | | | | |
| Block Island - Block Island State | 1,515 | 716 | | | | | |
| Orange - Orange County | 285 | 350 | | | | | |
| Sherman/Denison - Grayson County | 492 | 749 | | | | | |
| Colville - NEW | 150 | 1/ | 576 | | | | |
| Martinsburg - Eastern W.VA Regional | 1,525 | 1,406 | | | | | |
| Ricelake - NEW | 2,419 | 1,127 | | | | | |
| TOTALS | 31,419 | 21,081 | 52,500 | 3,142 | 2,108 | 5,250 | 57,750 |
| x Eligible Items | --- | --- | 10.0 | 10.0 | 10.0 | 10.0 | --- |

* Commuter Replacement in NASP
** Commuter in NASP

1/ No Eligible Terminal Building Investment

